

RELIABILITY TEST FOR COMPLETE  
709 SYSTEM

A. PURPOSE OF TEST

1. TO TEST EVERY I/O UNIT CONNECTED WITH A 709 SYSTEM AS WELL AS EVERY MAIN FRAME INSTRUCTION IN RELIABILITY FASHION. THIS TEST IS NOT A ROUND ROBIN, BUT A MF-I/O INTERLOCK TEST.

B. METHOD OF TEST

1. THE KEYS ARE USED TO SELECT THE DESIRED I/O UNITS TO BE TESTED. USING THE STANDARD KEY SELECTION FORMAT USED IN ALL PREVIOUS I/O DIAGNOSTICS  
  
A DIAGRAM OF I/O UNIT SELECTION IS INCLUDED IN THE WRITE UP.
2. THE PROGRAM WILL USE ALL CHANNELS INDICATED IN THE KEYS AT ALL TIMES.
3. THERE ARE 19 SECTIONS TO THE TEST. EACH SECTION WILL PRINT--SECTION X COMPLETE---. SECTIN COMPLETE WILL BE PRINTED EVEN IF THE I/O UNITS AFFECTED IN THE PARTICULAR SECTION WERE NOT SELECTED BY THE OPERATOR. THIS WILL SHOW THAT THE PROGRAM IS PROGRESSING CORRECTLY THROUGH ITS SEQUENCE OF INSTRUCTIONS.
4. THE VARIOUS SECTIONS ARE EXPLAINED IN DETAIL, IN SECTION C.
5. EACH SECTION OVERLAPS THE NEXT SO THAT THERE IS NO LOGICAL BREAKING POINT IN THE PROGRAM. I/O IS ALWAYS MOVING DURING MF OPERATION.
6. BEFORE THE COPMARISON FOR A PERVIOUS READ INSTRUCTION. THE NEXT I/O UNITS WILL BE SELECTED. I/O UNITS ARE ALWAYS IN TRANSMISSION STATUS WHEN MAIN FRAME IS OPERATING.
7. THE TIME OF THE PROGRAM IS APPROXIMATELY 140 SECONDS ON THE FIRST PASS, AND 20 SECONDS ON EACH SUCCEEDING PASS.-ASSUMING 16 DRUMS ARE SELECTED. DRUMS AND CRT WILL BY TESTED ONLY ONCE,M UNLESS SWITCH + IS DOWN DURING THE 1ST HALF OF THE TEST. AND 2ND HALF OF THE DECK WILL RUN 20 SECONDS PER PASS THROUGH THE PROGRAM. HOWEVER, PASS COMPLETE WILL NOT BE PRINTED UNTIL ALL UNITS ARE TESTED.
8. THE PROGRAM WILL MAKE THE NUMBER OF PASSES EQUAL TO THE HIGHEST NUMBER OF TAPE UNITS SELECTED ON ANY ONE CHANNEL. BEFORE PRINTING PASS COMPLETE AND TESTING SWITHC SIX.
9. THE LARGEST AMOUNT OF TIME BEFORE PRINTING-PASS COMPLETE 9SY1-. SHOULD BE NO MORE THEN 5 MIN WHICH WOULD EQUAL -- 16 DRUMS, CRT, ANY NUMBER OF CARD MACHINES, UP TO 9, AND ANY NUMBER OF TAPE DRIVES, UP TO 48.

THE NUMBER OF PASSES. BEFORE TESTING SWITCH SIX, IS DETERMINED BY THE TOTAL NUMBER OF TAPE UNITS ON ANY ONE CHANNEL. IT CAN BE PLAINLY SEEN THAT THE TESTING OF DRUMS AND CRT ARE WHAT TAKE THE GREATEST AMOUNT OF TIME. THESE WILL BE EXCLUDED AFTER THE SECOND HALF OF THE DECK IS READ IN.

10. THE PROGRAM IS READ INTO STORAGE IN 2 LOADS. THE FIRST LOAD WILL TEST DRUM, CRT, DS AND TCU CONTROL AND DATA CIRCUITS-EACH CHANNEL INDIVIDUALLY-, AND DRUM AND I/O INTERLOCK. IF SWITCH 6 IS UP, THE SECOND HALF WILL THEN BE READ OVER THE FIRST HALF, FROM 00152-05531. THE CONSTANT AREA AND SUBROUTINE AREA 05531-10614 AND 71316-77775, OR 11316-77779, WILL ALWAYS BE READ WITH THE FIRST HALF AND REMAIN AT THE ABOVE LOCATIONS THROUGHOUT THE PROGRAM.

### C. DESCRIPTION OF SECTIONS

#### 1. SECTION I

THIS SECTION WILL EXAME THE DSC TO MAKE SURE IT WAS NOT RESET BECAUSE OF PRESSING START. THIS WILL BE TESTED AFTER PRESSING START TO ENTER CONTROL WORDS.

#### 2. SECTION II

TESTS EACH DSC AND TCU, CONTROL AND DATA LINES. ONE DSC AND TCU AT A TIME ARE TESTED TO INSURE THE PROGRAM THAT EACH WILL OPERATE INDEPENDENTLY OF THE OTHER.

#### 3. SECTION III

ONE LINE OF WRITE PRINTER, AND ONE LINE OF READ PRINTER IS PRINTED, AND ONE CARD IS PUNCHED. THIS IS DONE ON DSC A, THEN DSC C, THEN DSC E, IF ALL HAVE BEEN SELECTED.

#### 4. SECTION IV

TESTS ANY NUMBER OF DRUMS UP TO 16. DRUMS ARE TESTED SEQUENTIALLY AS GIVEN. EACH DRUM IS GIVEN A SHORT LDA TEST. A SWITCHING TEST, A RANDOM NUMBER TEST, AND THE ADDED 709 DRUM USAGE -- LDA INDEXED, LDA INDIRECTLY ADDRESSED, LDA INDEXED AND INDIRECTLY ADDRESSED, AND HANG UP ON COPY.

#### 5. SECTION V

TEST THE DRUM AND DSC INTERLOCK CIRCUITS.

6. SECTION VI

TESTS THE CRT WITH 4 PATTERNS WHILE TAPE IS OPERATING. THE FOUR PATTERNS ARE -- UNION JACK, DOT CHECKERBOARD, INTENSITY, AND DOT INTENSITY.

VISUAL DISPLAY IS THE ONLY CRT ERROR INDICATION IN THE SECTION.

NOTE -- SECOND HALF OF TEST WILL READ IN AT THIS POINT. UNLESS SWITCH 6 IS DOWN.

7. SECTION VII

TESTS WRITE PRINTER ON DSCS A, C, AND E, AND WRITE TAPE ON B, D AND F, WHILE AN ADDER TEST GOES ON IN MF. THIS SECTION ALSO CHECKS THE TIMING BETWEEN WRITE SELECT AND RESET AND LOAD CHANNEL. THE TIMING ARE AN AVERAGE OF SEVERAL MACHINE TIMINGS.

8. SECTION VIII

TEST READ TAPE ON DSCS B, D AND F, AND READ PRINTER ON A, C AND E, WHILE AN INDICATOR TEST GOES ON IN MF.

9. SECTION IX

TESTS THE ABILITY TO WRITE TAPE ON ALL CHANNELS SELECTED. WHILE THE COMPARISON OF INFORMATION FROM THE READS IN THE PREVIOUS SECTION GOES ON IN MF.

10. SECTION X

TESTS READ TAPE ON DSCS B, D, AND F, AND WRITE PUNCH ON A, C, AND E, WHILE INDIRECTLY ADDRESSED AND INDEXED INSTRUCTIONS ARE OPERATING IN MF. THE COMPARISON FOR THE FIRST RECORD READ FROM TAPE. IN THIS SECTION. ALSO GOES ON IN MF.

11. SECTION XI

TESTS WRITE TAPE ON DSCS B, D, AND F, AND READ TAPE ON A, C AND E, WHILE THE COMPARISON OF THE REMAINING RECORDS IN THE PREVIOUS SECTION ARE COMPARED.

12. SECTION XII

TESTS READ TAPE ON DSCS B, D AND F, AND WRITE PRINTER ON A, C AND E,

WHILE THE COMPARISON OF THE READS IN THE PREVIOUS SECTION GOES ON IN MF.

13. SECTION XIII

TESTS WRITE TAPE ON DSCS B, D, AND F, AND WRITE PUNCH ON A, C AND E, WHILE FLOATING POINT INSTRUCTIONS ARE PERFORMED IN MF. THIS MAIN FRAME SECTION WAS BORROWED FROM 9M05--FLOATING TO FIXED AND FIXED TO FLOATING INTERGER TRANSLATION.

14. SECTION XIV

TEST WRITE TAPE ON DSCS B, D AND F. AND READ PRINTER ON A, C AND E WHILE FLOATING POINT INDIRECTLY ADDRESSED GOES ON IN MF. THIS MAIN FRAME SECTION WAS ALSO BORROWED FROM 9M05--THE QUADRATIC FORMULA.

15. SECTION XV

TESTS WRITE PRINTER BINARY ON DSCS A, C AND E, AND READ TAPE WITH INDICATOR 19 ON B, D AND F, WHILE A RELIABILITY TEST OF MAIN FRAME INSTRUCTIONS GOES ON IN MF. ALSO IN MF DURING THIS SECTION IS A COMPARISION FOR READ PRINTER OF THE PREVIOUS SECTION, AND A COMPARISION OF THE TAPE READ WITH INDICATOR 19 IN THIS SECTION.

16. SECTION XVI

TESTS READ TAPE ALL CHANNELS SELECTED, WHILE A RELIABILITY TEST OF MAIN FRAME INSTRUCTIONS INDIRECTLY ADDRESSES GOES ON IN MAIN FRAME.

17. SECTION XVII

TESTS READ CARDS ON DSCS A, C AND E, AND WRITE TAPE ON B, D AND F, WHILE THE COMPARISON FOR THE PREVIOUS SECTION GOES ON IN MF.

THE PROGRAM WILL NOT HALT TO TRANSFER CARDS TO CARD READERS. IF PREPUNCHED CARDS ARE NOT AVAILABLE THE PROGRAM WILL HANG UP WITH THE READERS IN SELECT WAITING FOR CARDS.

18. SECTION XVIII

TESTS READ TAPE ON DSCS B, D AND F, AND READ CARDS ON A, C AND E, WHILE COMPARISON FOR PREVIOUS SECTION GOES ON IN MF. MF ALSO IS PERFORMING MF INSTRUCTIONS INDIRECTLY ADDRESSED AND INDEXED.

19. SECTION XIX

TESTS READ CARDS ON DSCS A, C AND E, AND WRITE TAPE ON B, D AND F, WHILE A TEST OF THE EXECUTE INSTRUCTION GOES ON IN MF. THE COMPARISON FOR THE LAST CARD READ IS ALSO GOING ON.

NOTE -- CARDS WILL BE READ ONLY ON THE FIRST PASS. CARD READERS WILL BE IGNORED AFTERWARDS

D. AREA OF MACHINE REQUIRED

1. 8K STORAGE OR LARGER.
2. ANY NUMBER OF DRUMS UP TO 16.
3. ANY NUMBER OF CARD MACHINES UP TO 9. ON CHANNELS A,C, OR E.
4. ANY NUMBER OF TAPES UP TO 40, ON CHANNELS A,B,C,D,E, OR F
5. CATHODE RAY TUBE

NOTE -- THE ABOVE UNITS WILL BE TESTED ONLY IF INDICATED BY KEY SELECTION.

6. STORAGE LOCATIONS

00000-10614	9SY1
71316-77775 OR 11316-17775	9SY1-CONSTANT AREA
06264-7447	PRINT ROUTINE
05531-06263	MODIFICATION PROGRAM-SPECIAL REWRITTEN 9IOM

E. PROGRAM CONTROL

- |         |         |                            |
|---------|---------|----------------------------|
| 1. DECK | 000     | 9LD01 LOW END LOADER       |
|         | 001-223 | 9SY1 FIRST HALF OF DECK    |
|         | 224     | TRA CARD 73764-FIRST HALF  |
|         | 225     | 9LD01 LOW LOADER           |
|         | 226-354 | 9SY1 2ND HALF OF DECK      |
|         | 355     | TRA CARD 73764-SECOND HALF |
|         | 356-357 | BLANK CARDS                |

2. SENSE SWITCH CONTROL

SSW 1,2 AND 4	WILL BE USED IN STANDARD 9DEPR FORMAT
SSW 3 UP	WILL PRINT ERRORS AND SECTIONS COMPLETE ON DSC A.

SSW 1,2 AND 4                    WILL BE USED IN STANDARD 9DEPR FORMAT  
SSW 3 DOWN                      WILL HALT ON ERROR AND WILL  
                                     NOT PRINT SECTIONS COMPLETE.

SSW 5 UP                         TEST SSW 6

SSW 5 DOWN                      REPEAT TEST ON UNITS SELECTED  
                                     INITIALLY WITHOUT HALT TO  
                                     ENTER I/O SELECTION. USED ONLY IN  
                                     SECOND HALF.

SSW 6 DOWN                      1ST HALF OF DECK-LOOP IN FIRST HALF  
                                     2ND HALF OF DECK-LOOP IN SECOND HALF  
                                     WILL RETURN TO HALT TO ENTER CONTROL.

F. NORMAL STOPS

1. 05553 - TO ENTER CONTROL FOR CHANNELS A AND B. IF ONLY TAG KEY 20 IS DOWN THIS WILL BE ONLY STOP IN MODIFICATION SUBROUTINE. PUSH START TO CONTINUE.
2. 05567 - TO ENTER CONTROL FOR CHANNELS C AND D, PUSH START TO CONTINUE.
3. 05574 - TO ENTER CONTROL FOR CHANNELS E AND F, PUSH START TO CONTINUE.

G. ERROR STOPS

1. 05561 - NO TAG KEYS THROWN DOWN AT FIRST I/O MODIFICATION HALT, PLACE TAG KEY DOWN AND PRESS START.
2. 06303 - STOPS IN ERROR ROUTINE WITH SWITCH 3 DOWN, PUSH START TO  
OR CONTINUE.  
06331

H. STANDARD SUB ROUTINES

THE STANDARD 9DEPR WAS ASSEMBLED WITH 9SY1 AND APPEARS IN THE LISTING. THIS HAD TO BE DONE BECUASE OF THE SIZE OF 9SY1. THE I/O MODIFICATION PROGRAM USED WAS ASSEMBLED WITH 9SY1 ALSO, FOR THE SAME REASON, HOWEVER, THE MODIFICATION ROUTINE HAS BEEN REWITTEN TO FIT THE NEED OF 9SY1. THIS CHANGE DOES NOT EFFECT THE MAIN PROGRAM.

I/O SELECTION.

1. THE VERSION OF THE I/O MODIFICATION USED IN 9SY1 DOES NOT MODIFY ANY INSTRUCTION. EXCEPT TAPE SELECTS.

IF ONE CHANNEL HAS MORE TAPE UNITS THEN ANOTHER, AS SELECTED IN THE KEYS, THE I/O MODIFICATION PROGRAM WILL RETURN THE UNIT SELECT TO 1

ON THE CHANNEL HAVING THE SMALLER NUMBER OF UNITS SELECTED. PROGRAM  
WILL CONTINUE FROM THERE UNTIL THE NUMBER OF PASSES HAVE BEEN MADE  
CORRESPONDING TO THE HIGHEST NUMBER OF UNITS ON ANY ONE CHANNEL.

EXAMPLE

ASSUME THE ENTRY INTO THE KEYS WAS AS FOLLOWS.

CHANNEL A --- 2 UNITS      CHANNEL B --- 4 UNITS  
CHANNEL C --- 6 UNITS      CHANNEL D --- 1 UNIT

CHANNELS	UNIT+	ON	PASS			
	1	2	3	4	5	6
A	1	2	1	2	1	2
B	1	2	3	4	1	2
C	1	2	3	4	5	6
D	1	1	1	1	1	1

WHEN THE HIGHEST UNIT COUNT HAS BEEN REDUCED TO 0, THE PROGRAM  
WILL BE RESET TO ITS INITIAL STATE. AND WILL PRINT-PASS COMPLETE  
9 SY1-THEN TEST SWITCHES 5 AND 6.

I. COMMENTS

1. CARE MUST BE EXERCISED IN A MANUAL TRANSFER TO A GIVEN SECTION OF THE PROGRAM.

FLOATING POINT SECTIONS HAVE BEEN MONITORED AS PER 9M05, AND A  
MANUAL TRANSFER MUST BE GIVEN ONLY TO THE BEGINNING OF A FLOATING  
POINT SECTION. SECTIONS 13 AND 14.

THE SECTION COMPLETE PRINT OUTS WILL INDICATE THE OCTAL ADDRESS  
TO TRANSFER TO, IF A MANUAL TRANSFER IS TO BE MADE.

2. IF THE S KEY IS NOT THROWN DOWN AT THE FIRST I/O MODIFICATION HALT, THE PROGRAM WILL AUTOMATICALLY CHANGE THE CARD READER SELECT TO A TAPE SELECT AT THE TWO AREAS IN THE PROGRAM WHERE SWITCH 6 IS TESTED. S KEY UP INDICATES THAT THE PROGRAM IS BEING READ FROM TAPE. IF THE PROGRAM SUBSEQUENTLY COMES BACK TO I/O MODIFICATION PROGRAM, S KEY NEED NOT BE TOUCHED, UNLESS THE PROGRAM HAS AGAIN BEEN READ INTO STORAGE.
3. THE RESTART STORED AT 00000 WILL NOT OPERATE CORRECTLY IF THE PROGRAM IS STOPPED WITHIN AN AREA WHERE ANY SORT OF TRAP SEQUENCE IS WORKING. HOWEVER, THE RESTART WILL BE RESTORED AFTER EACH TRAP SECTION.
4. THE CONTROL WORDS FOR CHANNEL OPERATION AND READ WRITE AREAS, ARE STORED IN THE HIGHEST AREA OF ANY SIZE STORAGE, TO TEST THE HIGH ORDER POSITIONS OF THE DATA REGISTERS, ADDRESS REGISTERS, AND LOCATION REGISTERS.

IF A RESET AND START IS PERFORMED FROM THE CONSOLE. THE PROGRAM WILL AUTOMATICALLY RESET TO ITS INITIAL STATE AND RETURN TO HALT TO ENTER CONTROL IN MODIFICATION PROGRAM.

5. ONLY THE UNITS SELECTED IN THE KEYS WILL BE TESTED. THE PROGRAM WILL AUTOMATICALLY SKIP ANY SECTION OR SECTIONS OF THE PROGRAM WHICH DO NOT TEST THE UNITS SELECTED.

IF NO I/O UNITS ARE SELECTED, THE PROGRAM WILL OPERATE ON THE MAIN FRAME SECTIONS.

ALL SECTION COMPLETE PRINT OUTS WILL BE PRINTED, REGARDLESS OF WHAT UNITS, IF ANY, HAVE BEEN SELECTED. THIS WILL GIVE AN INDICATION IF PROGRAM SKIPS A SECTION.

6. IF CARDS PUNCHED ARE TO BE READ, THE TWO BLANKS -- CARDS 344-356 -- MUST BE REMOVED FROM THE CARD READER. BEFORE THE PROGRAM COMES TO THE READER LOOKING FOR THEM. IF PREPUNCHED CARDS ARE USED. PLACE THESE AHEAD OF THE TWO BLANK CARDS.

7. THIS PROGRAM MAY BE DIFFICULT TO USE IN PIN POINTING ERRORS. IF AN ERROR IS DETECTED, THE UNIT AND TYPE OF ERROR WILL BE INDICATED. HOWEVER, IT IS SUGGESTED THAT WHEN TROUBLE SHOOTING. ONE OF THE SMALLER PROGRAMS TESTING THE UNIT IN ERROR BE USED.

THROUGH NECESSITY, BECAUSE OF THE LARGE AMOUNT OF MAIN FRAME TESTING, THE LOOP RETURNS ARE EXTREMELY LONG IN THE SECOND HALF SECTIONS.

8. IF LOOPING IN THE MULTI CHANNEL HALF, THE SECTION COMPLETE PRINT OUTS WITH START WITH SECTION SEVEN. THE FIRST SIX SECTIONS ARE IN THE FIRST HALF OF THE DECK.

9. THERE MUST BE TAPE ON BOTH CHANNELS A AND B FOR THE DRUM AND I/O INTERLOCK SECTION-SECTION 5--TO BE PERFORMED CORRECTLY.

10. THE CRT SECTION-SECTION 6--WILL OPERATE ON THE CRT IF NO TAPES ARE SELECTED. HOWEVER, IF THE ABILITY TO OPERATE THE CRT AND TAPES AT THE SAME TIME IS TO BE TESTED, TAPE MUST BE ON CHANNEL A.

NOTE -- IN ORDER TO OPERATE CRT AND TAPES CONCURRENTLY TWO ENGINEERING CHANGES MUST BE ON THE COMPUTER. THEY ARE E.C. =245719 AND E.C. =245680.

11. THREE CARDS WILL BE PUNCHED ON THE FIRST PASS AND WILL BE READ, IF CARD READERS ARE SELECTED. ON EACH SUCCEEDING PASS, CARDS WILL BE PUNCHED, BUT CARD READERS WILL BE IGNORED.

12. IF SWITCH 6 IS DOWN DURING FIRST HALF OF THE DECK, ONLY ONE CARD WILL BE PUNCHED. THE PUNCH WILL BE IGNORED AFTER THE FIRST



PASS.

13. CARDS PUNCHED IN SECOND HALF OF DECK. AFTER FIRST PASS WILL ALL BE PUNCHED THE SAME. FOR VISUAL INSPECTION OF ERRORS.
14. IF A-SPACE- PRINTOUT OCCURS, SOME SECTION OF THE PROGRAM WILL PROBABLY HAVE BEEN SKIPPED.

THE PRINTOUT WILL SHOW THE LOCATION THE PROGRAM SKIPPED TO IN THE DECREMENT OF THE INDICATORS. EXAMINE THE-SECTION COMPLETE-PRINTOUT TO DETERMINE WHICH SECTION THE SKIP OUT OCCURRED. IF THE SKIP OUT OCCURRED IN A FLOATING POINT SECTION, THE ADDRESS OF THE INDICATORS- IN THE-SPACE-PRINTOUT-WILL GIVE THE BEGINNING ADDRESS OF THE SECTION WHERE THE SKIP OUT OCCURRED. IF THE SKIP OUT DID NOT OCCUR IN A FLOATING POINT SECTION. IGNORE THE ADDRESS OF THE INDICATORS.

15. TO PLACE PROGRAM ON DIAGNOSTIC TAPE AND READIT IN WITH 9T10 AND 9T11 DO THE FOLLOWING
  1. REPLACE LOADER FOR FIRST HALF OF DECK-CARD 000- WITH TAPE LOADER.
  2. REPLACE LOADER FOR SECOND HALF OF DECK-CARD 225 WITH TAPE LOADER.
  3. ADD-9LREW, LOW REWINDER-IN FRONT OF TRANFER CARD-CARD 355.

NOTE -- THE ASSIGNMENT OF A PARTICULAR PANEL KEY TO 9SY1 WILL DEPEND UPON WHICH FILE 9SY1 HAS BEEN PLACED ON TAPE. SEE 9T10.

4. IN READING 9SY1 BACK FROM TAPE. ENTER CORRECT CONSOLE KEY CORRESPONDING TO THE FILE ON TAPE CONTAINING 9SY1.
5. AS PROGRAM WILL BE READ IN TWO SEPARATE SECTIONS, THE TAPE MUST NOT BE REWOUND UNTIL THE SECOND SECTION IS READ.

IF S KEY IS LEFT UP WHEN ENTERING CONTROL OF 9SY1 AT STOP 005553-, THE PROGRAM WILL AUTOMATICALLY CHANGE THE CARD READER SELECT TO A TAPE SELECT AND CALL THE SECOND HALF.

NOW PERFORMING - 9SY1A - SYSTEM CHECK

\* 00152 START KEY RESET-SECTION 1 COMPLETE  
\* 00203 INITIAL 755 AND 766-SECTION 2 COMPLETE  
  
\* 01772 INITIAL CARD MACHINES-SECTION 3 COMPLETE  
  
\* 02403 ALL DRUMS TESTED-SECTION 4 COMPLETE  
  
\* 03643 DRUM AND I/O SELECTION INTERLOCK-SECTION 5 COMPLETE  
  
\* 03755 CRT-ALL DISPLAYS-SECTION 6 COMPLETE  
\* 00154 WRITE TAPE AND WRITE PRINTER-SECTION 7 COMPLETE  
\* 00407 READ TAPE AND READ PRINTER-SECTION 8 COMPLETE  
\* 00551 WRITE TAPE ALL CHANNELS-SECTION 9 COMPLETE  
  
\* 00753 READ TAPE AND WRITE PUNCH-SECTION 10 COMPLETE  
\* 01231 WRITE TAPE AND READ TAPE-SECTION 11 COMPLETE  
  
\* 01632 READ TAPE AND WRITE PRINTER-SECTION 12 COMPLETE  
  
\* 02024 WRITE TAPE AND WRITE PUNCH-SECTION 13 COMPLETE  
\* 02335 WRITE TAPE AND READ PRINTER-SECTION 14 COMPLETE  
  
\* 02533 WRITE PR BINARY AND READ TAPE-IND 19-SECTION 15 COMPLETE  
  
\* 03702 READ TAPE CONCURRENTLY-SECTION 16 COMPLETE  
  
\* 04253 READ CARDS AND WRITE TAPE-SECTION 17 COMPLETE  
\* 04563 READ TAPE AND READ CARDS-SECTION 18 COMPLETE  
  
\* 04770 READ CARDS AND WRITE TAPE-SECTION 19 COMPLETE  
PASS COMPLETE - 9SY1 - SYSTEM CHECK

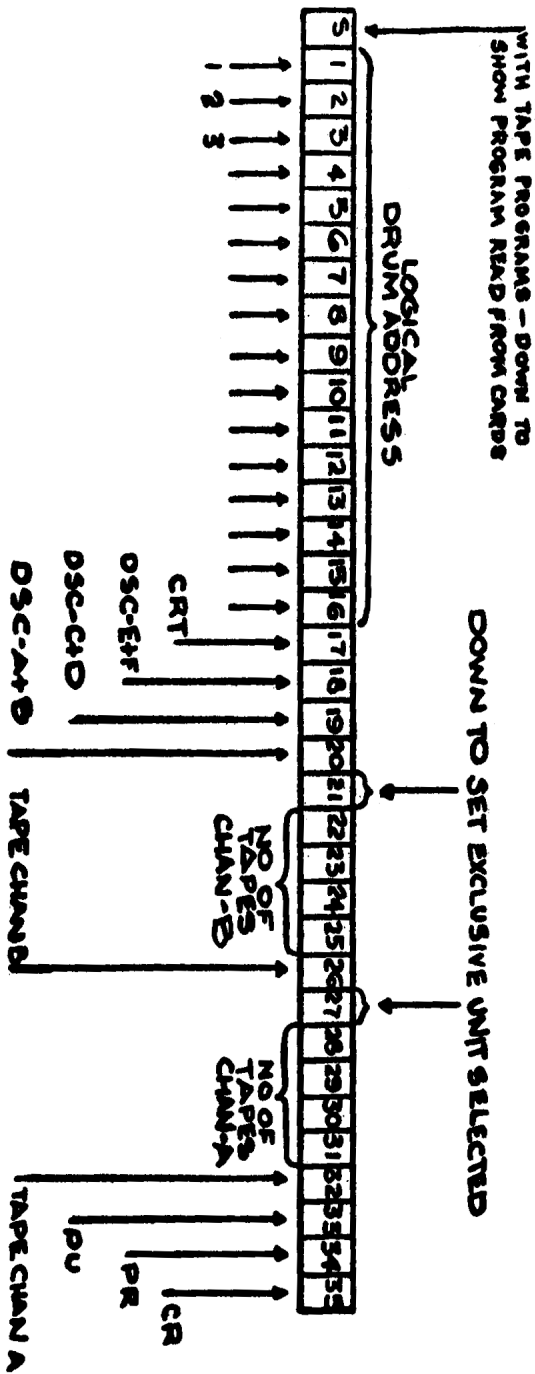
THE ABOVE INFORMATION SHOWS A PERFECT ERROR

FREE PASS. ANY OTHER PRINTOUT WILL INDICATE

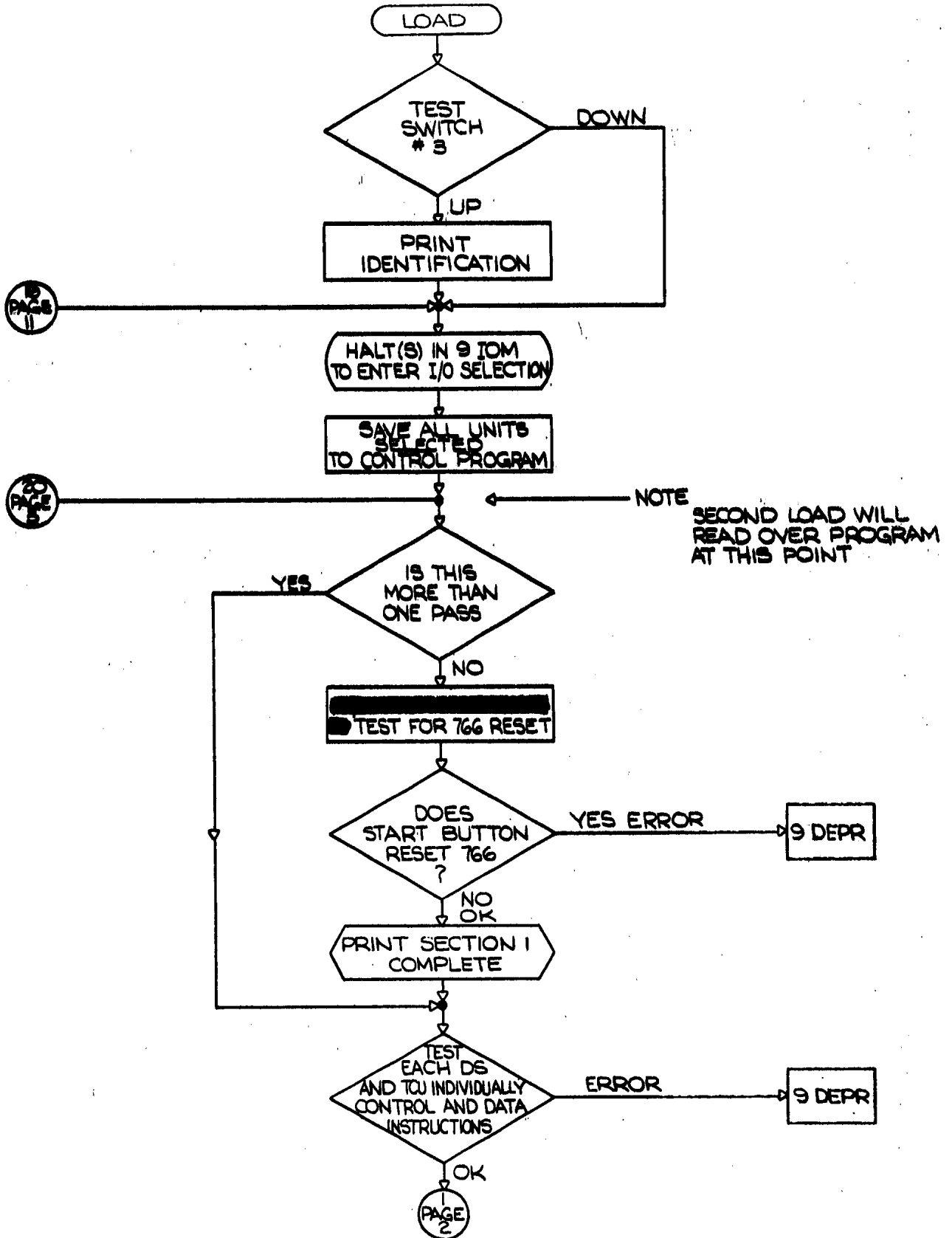
AN ERROR

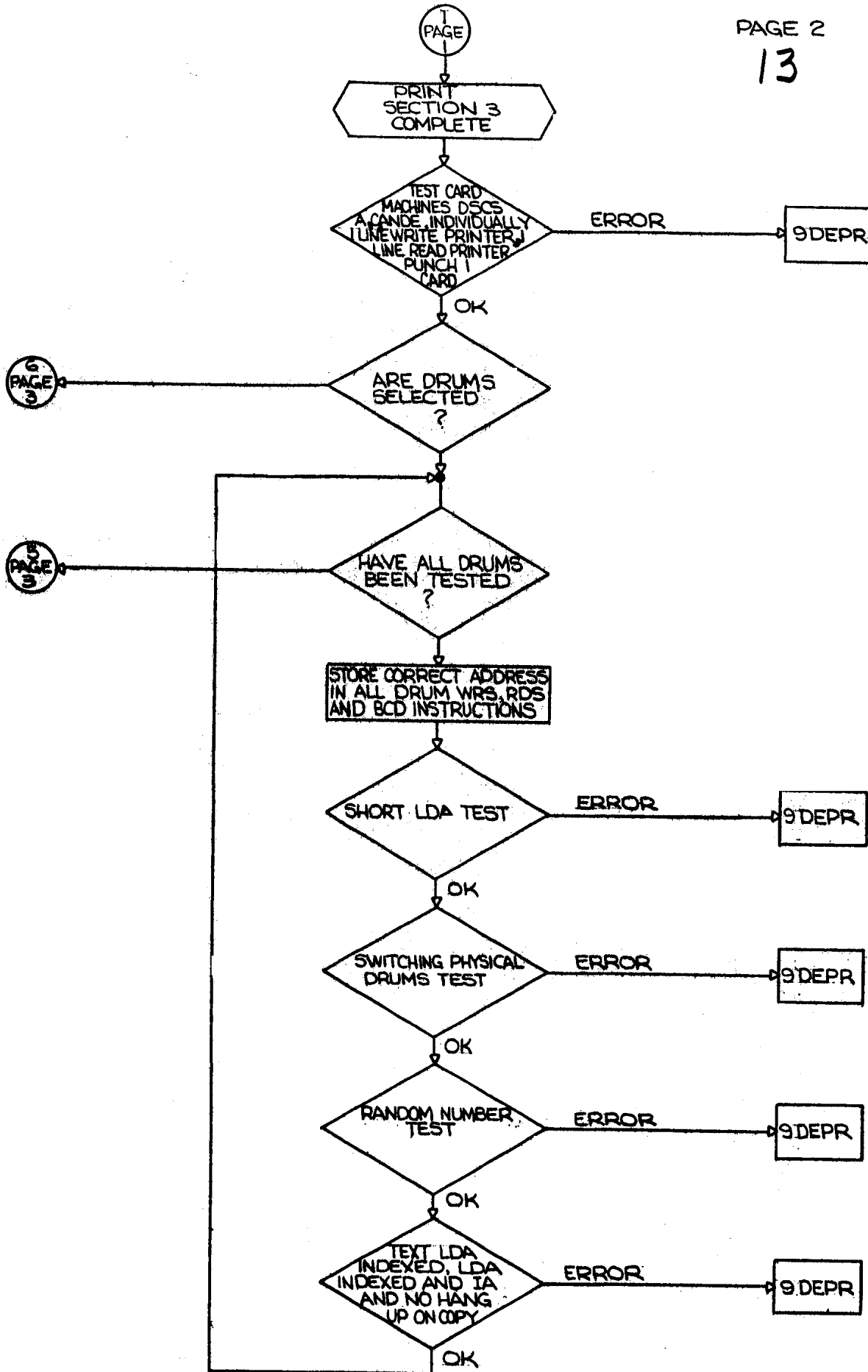
||

I/O SELECTION FORMAT FOR CONTROL OF  
 I/O PROGRAMS  
 (TO BE ENTERED INTO KEYS)



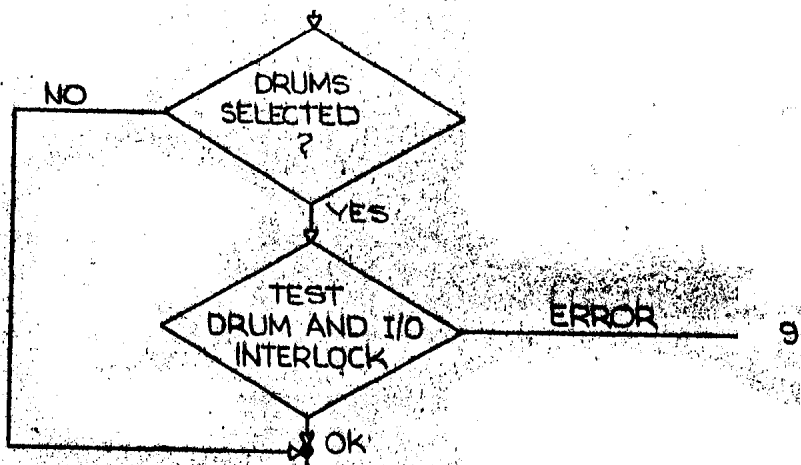
9 SYIA - SYSTEM CHECK



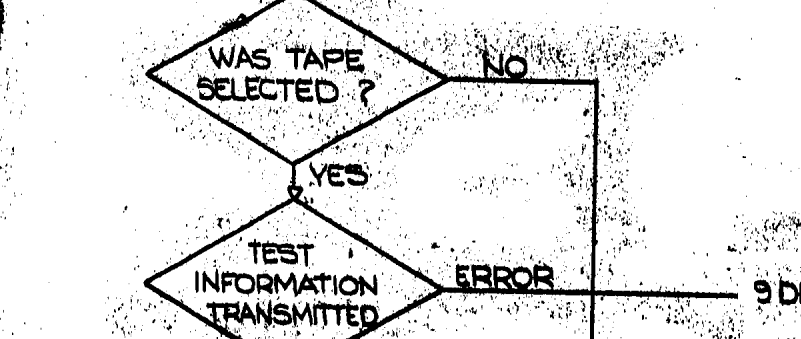
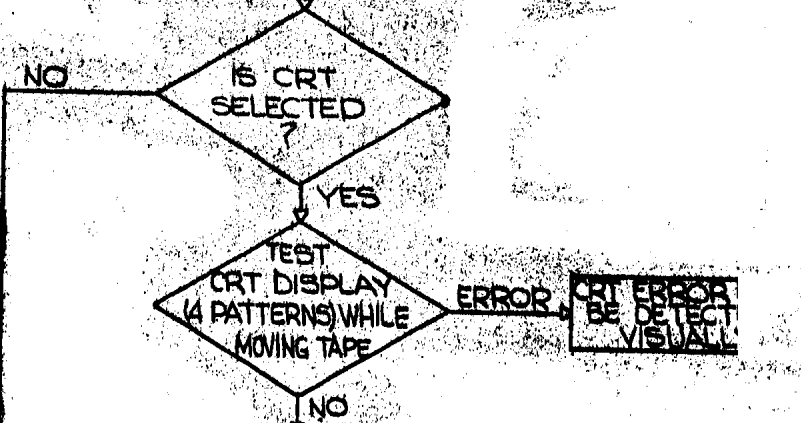


T  
4 COMPLETE

P 3  
4



PRINT SECTION 5 COMPLETE

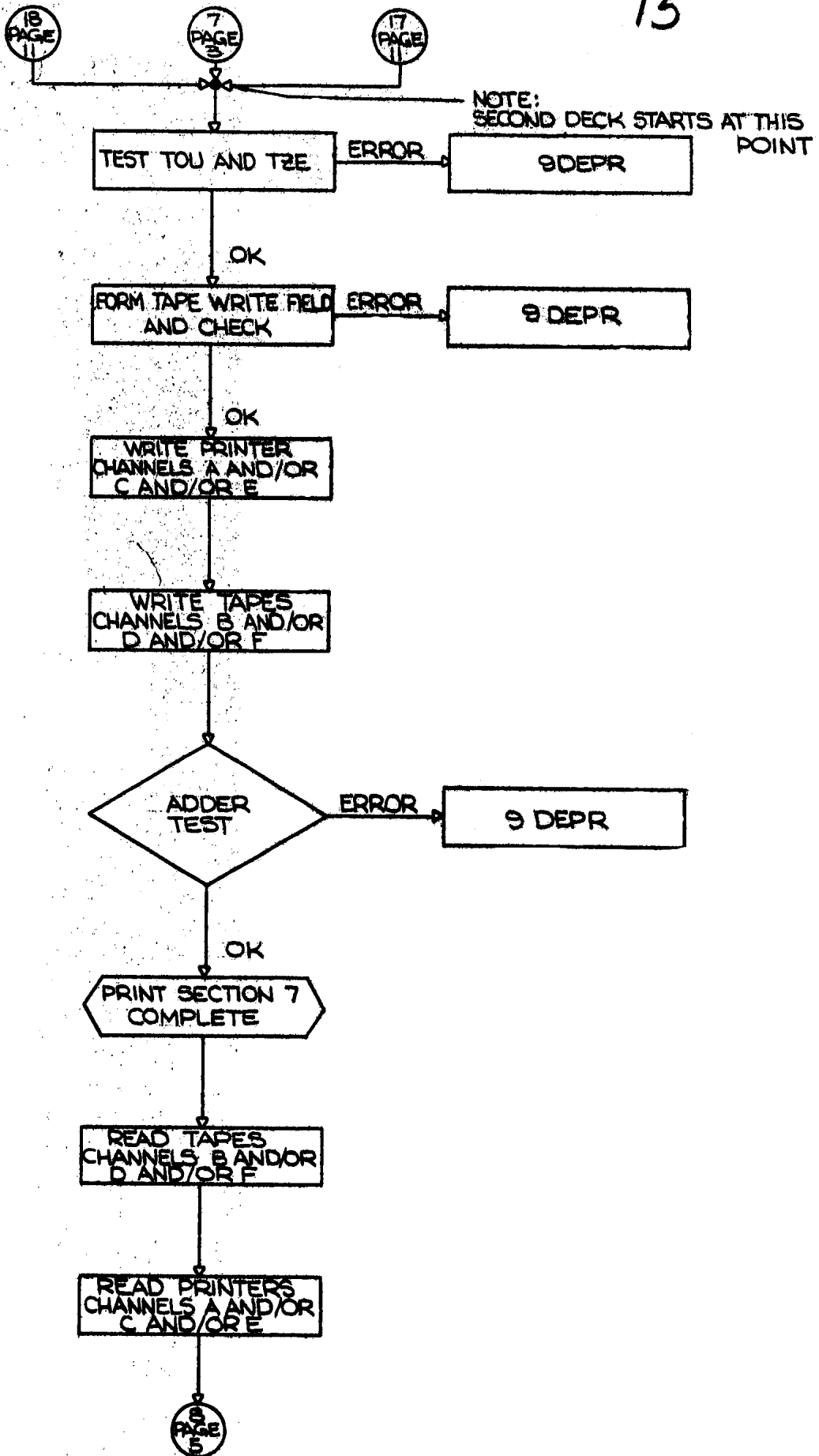


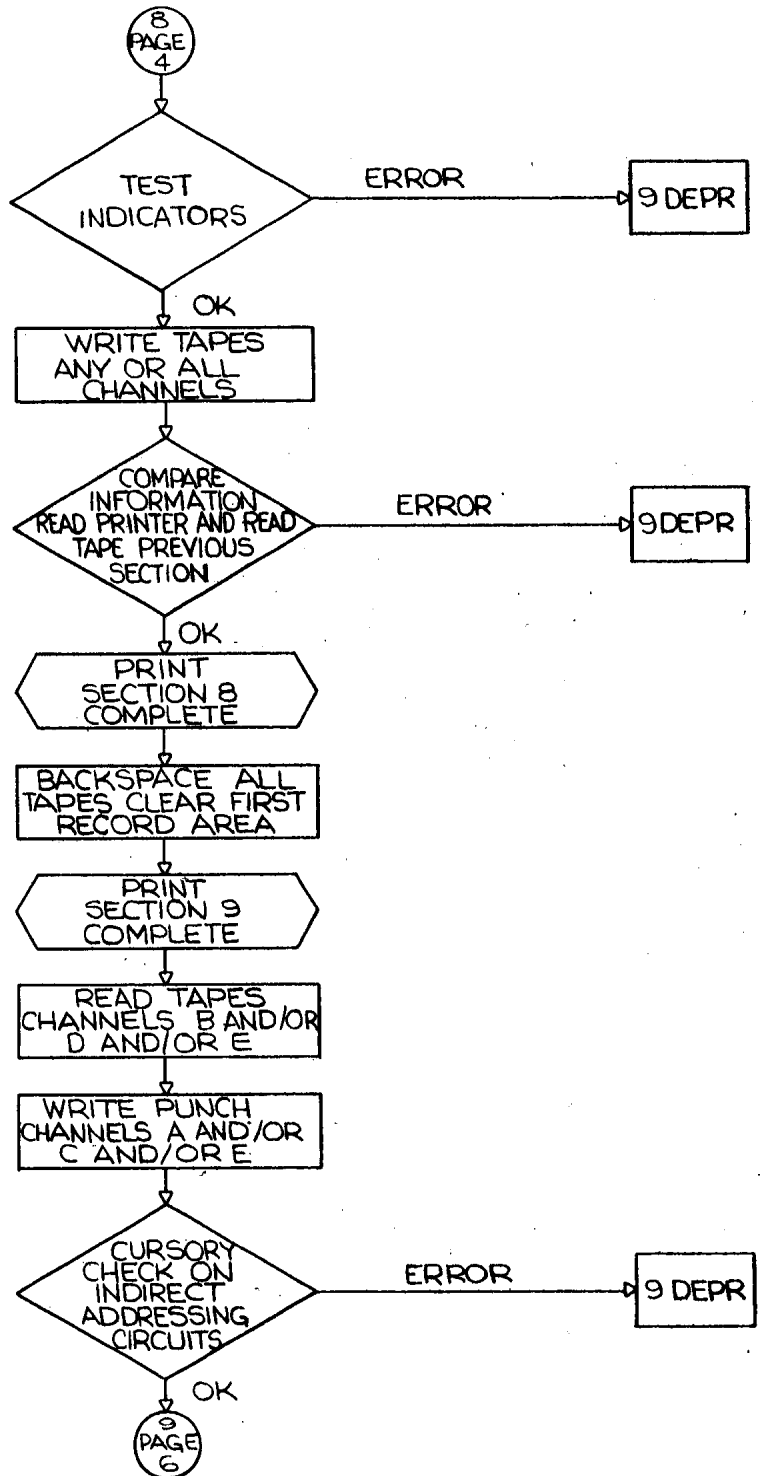
O  
PRINTING  
6 COMPLETE

TEST SWITCH NO. 6

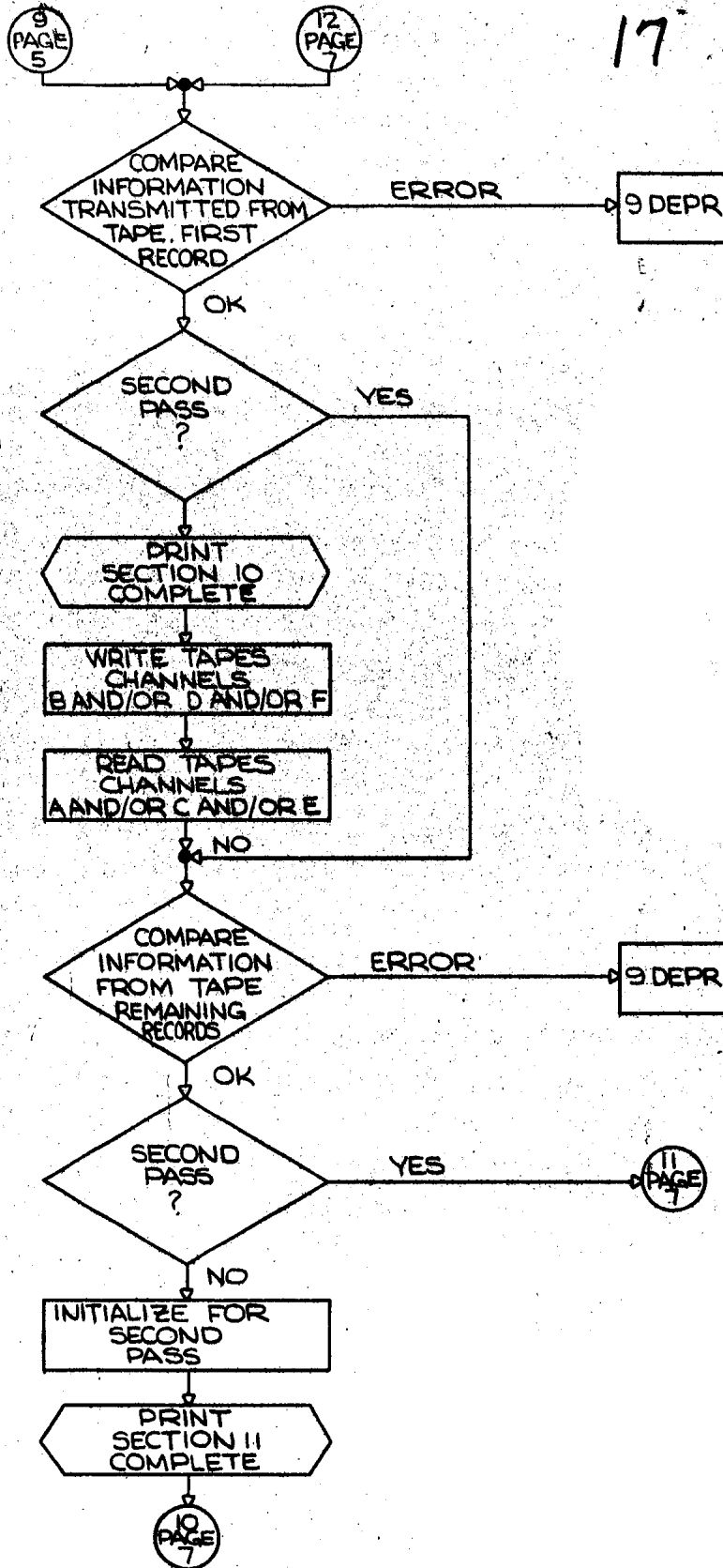


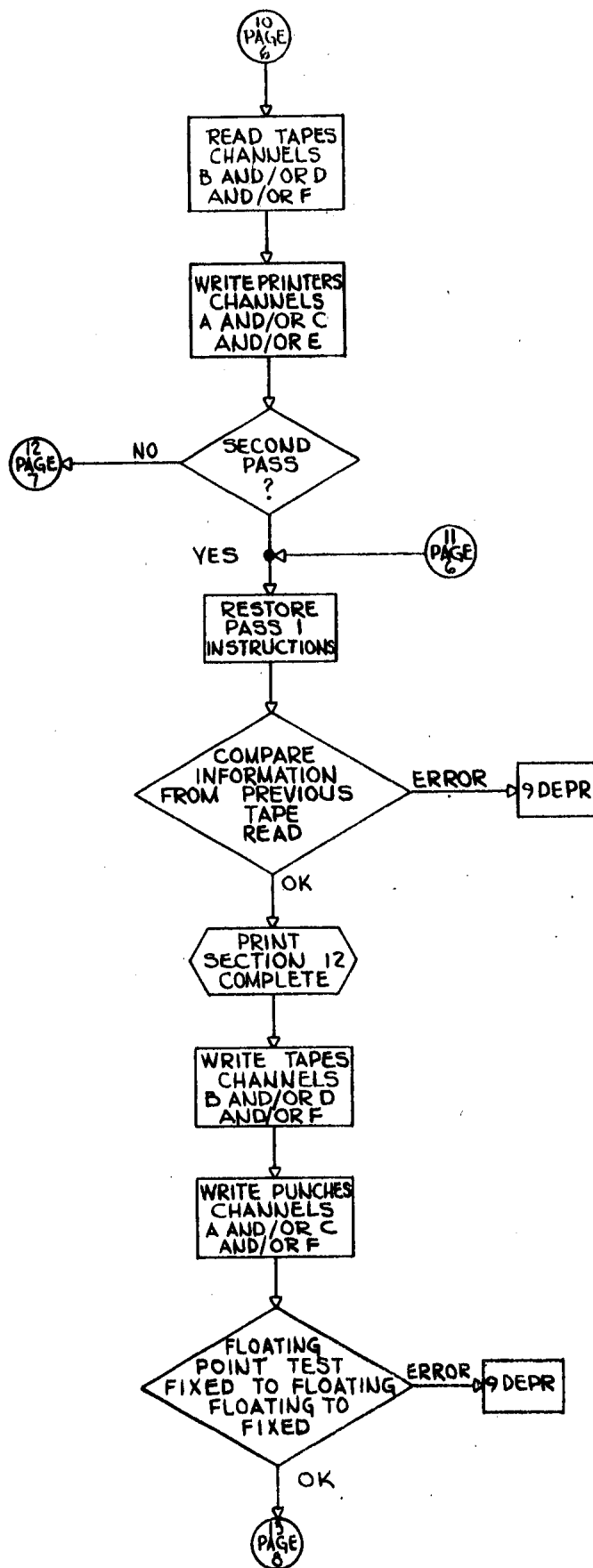
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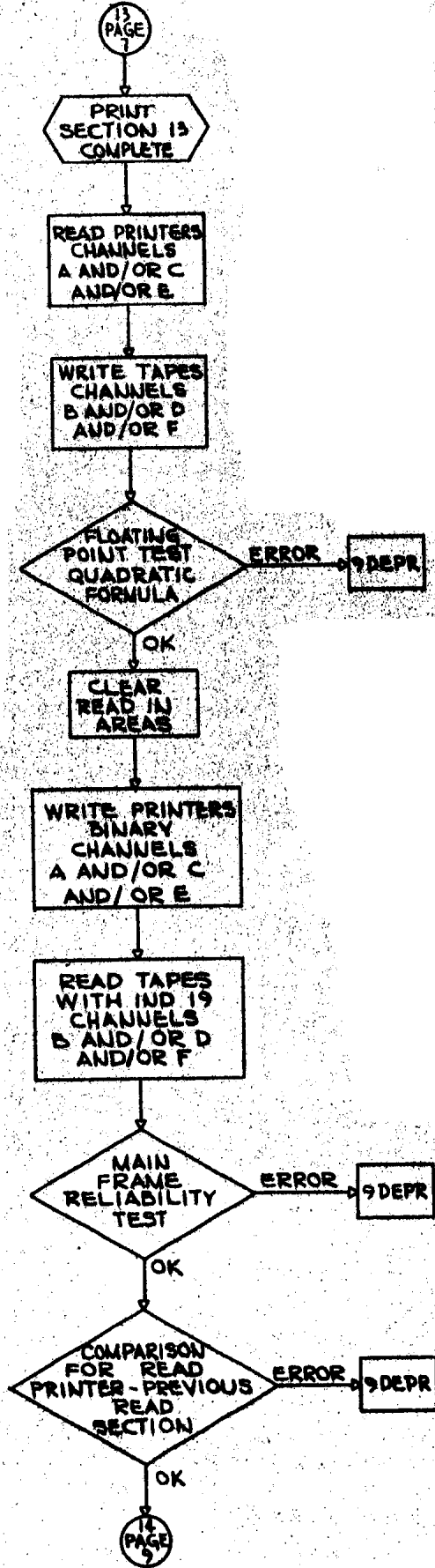


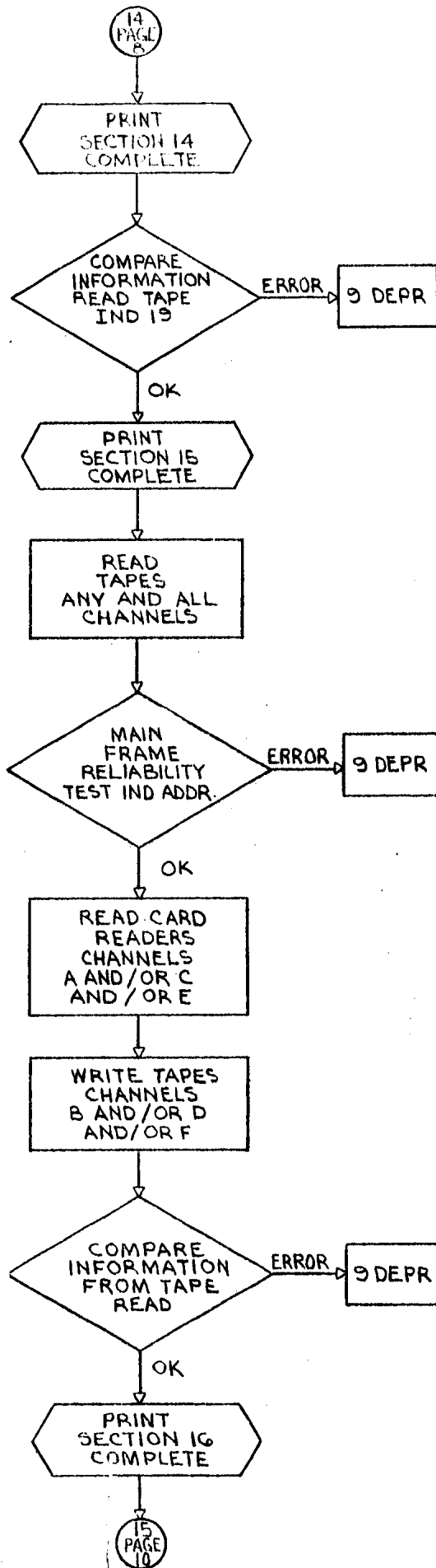




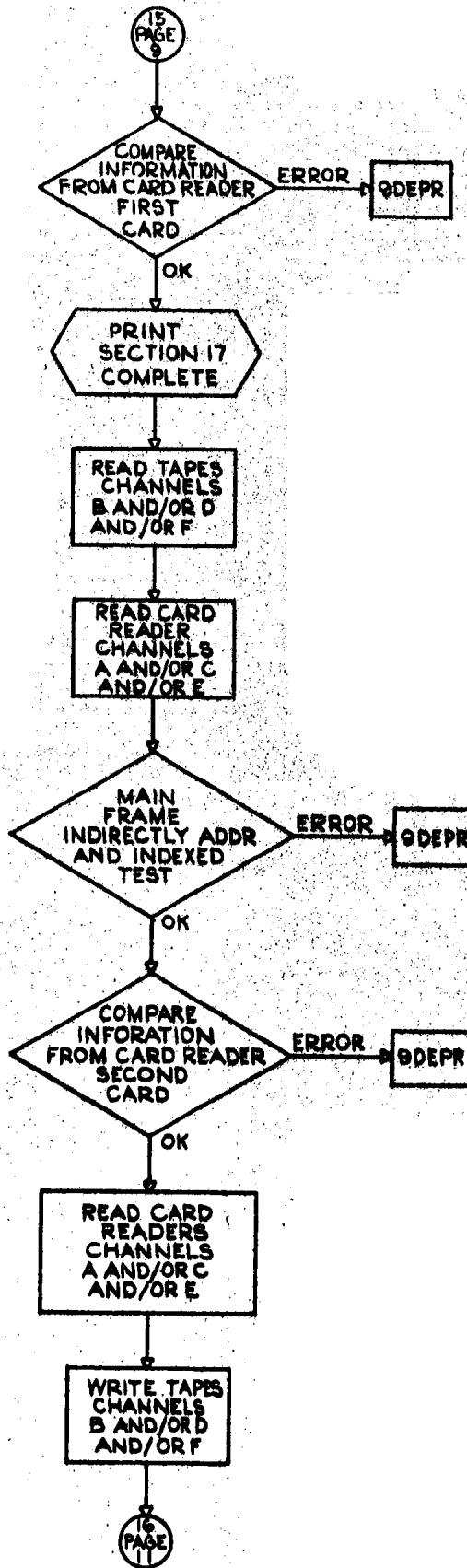


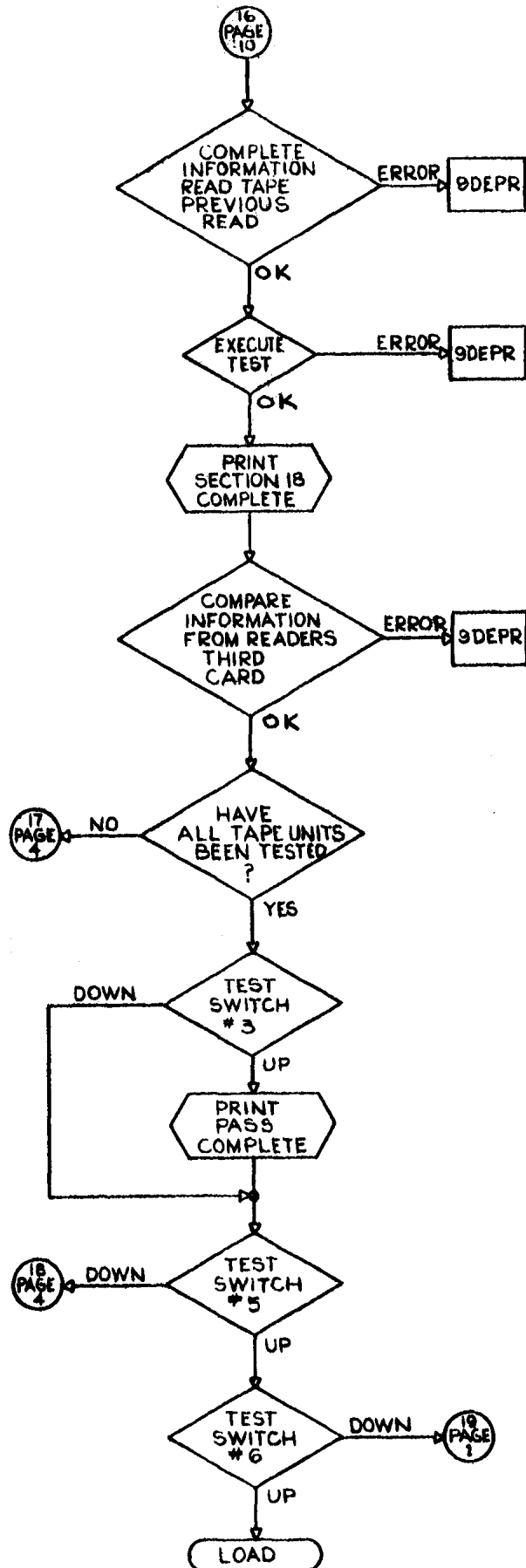






21





9SY1 SYSTEM CHECK

00030           ORG 24

\*THIS SECTION WILL BE READ IN, AND ANY DRUMS, CRT, AND BUFFER  
 \*INSTRUCTIONS WILL BE TESTED. IF SWITCH 6 IS NOT DOWN  
 \*THIS SECTION WILL READ IN THE SECOND SECTION, WHICH TEST ALL  
 \*MAIN FRAME INSTRUCTIONS, WHILE PERFORMING COMBINATIONS  
 \*OF READING AND WRITING ALL I/O UNITS SELECTED.

00030	0500	00	0	72366	BEGIN	CLA	RSET	
00031	0601	00	0	00000		STO	0	
00032	0774	00	1	00017		AXT	15,1	CLEAR
00033	0600	00	1	73025		STZ	CRCHA+15,1	SWITCH
00034	2	00001	1	00033		TIX	*-1,1,1	CONSTANTS
00035	0074	00	4	05550		TSX	IOC,4	TO ENTER I/O SELECTION
00036	0774	00	1	00005		AXT	5,1	
00037	0500	00	0	05535		CLA	CTRA	COUNT FOR CHAN A
00040	0340	00	1	05543		CAS	CTRA+6,1	COMPARE TO NEXT COUNT
00041	0020	00	0	00044		TRA	*+3	ACC GREATER
00042	0020	00	0	00044		TRA	*+2	ACC EQUAL
00043	0020	00	0	00046		TRA	*+3	ACC LESS
00044	2	00001	1	00040		TIX	*-4,1,1	ENTRY HERE NO CHANGE
00045	0020	00	0	00050		TRA	*+3	
00046	0500	00	1	05543		CLA	CTRA+6,1	ENTRY HERE BRINGS IN
00047	2	00001	1	00040		TIX	*-7,1,1	NEXT HIGHEST COUNT
00050	0601	00	0	72375		STO	TPCNT	THIS SHOULD STORE HIGHEST COUNT
00051	0601	00	0	71652		STO	STPCT	SAVE COUNT
00052	0500	00	0	05531	TCW1	CLA	CTRL1	BRING IN 1ST CONTROL
00053	0120	00	0	71431		TPL	CTAPE	
00054	0100	00	0	00076		TZE	TCW2	IS IT ZERO
00055	0044	00	0	00000		PAI		NO-PLACE INTO INDICATORS
00056	0500	00	0	71566		CLA	ONES	L-ALL ONES
00057	0056	00	0	000001		RNT	1	TEST FOR CR CHAN. A
00060	0020	00	0	00062		TRA	*+2	NO
00061	0601	00	0	73006		STO	CRCHA	YES
00062	0056	00	0	000002		RNT	2	TEST FOR PR CHAN. A
00063	0020	00	0	00065		TRA	*+2	NO
00064	0601	00	0	73007		STO	PRCHA	YES
00065	0056	00	0	000004		RNT	4	TEST FOR PU CHAN A
00066	0020	00	0	00070		TRA	*+2	NO
00067	0601	00	0	73010		STO	PUCHA	YES
00070	0056	00	0	000010		RNT	10	TEST FOR TAPE CHAN A
00071	0020	00	0	00073		TRA	*+2	NO
00072	0601	00	0	73011		STO	TPCHA	YES

00073	0056	00	001000		RNT 1000	TEST FOR TAPE CHAN B
00074	0020	00	0 00076		TRA *+2	NO
00075	0601	00	0 73022		STO TPCHB	YES
00076	0500	00	0 05532	TCW2	CLA CTRL2	BRING IN 2ND CNTROL
00077	0100	00	0 00121		TZE TCW3	IS IT ZERO
00100	0044	00	0 00000		PAI	NO-PLACE INTO INDICATORS
00101	0500	00	0 71566		CLA ONES	L-ALL ONES
00102	0056	00	000001		RNT 1	TEST FOR CR CHAN. C
00103	0020	00	0 00105		TRA *+2	NO
00104	0601	00	0 73012		STO CRCHC	YES
00105	0056	00	000002		RNT 2	TEST FOR PR CHAN. C
00106	0020	00	0 00110		TRA *+2	NO
00107	0601	00	0 73013		STO PRCHC	YES
00110	0056	00	000004		RNT 4	TEST FOR PU CHAN C
00111	0020	00	0 00113		TRA *+2	NO
00112	0601	00	0 73014		STO PUCHC	YES
00113	0056	00	000010		RNT 10	TEST FOR TAPE CHAN C
00114	0020	00	0 00116		TRA *+2	NO
00115	0601	00	0 73015		STO TPCHC	YES
00116	0056	00	001000		RNT 1000	TEST FOR TAPE CHAN D
00117	0020	00	0 00121		TRA *+2	NO
00120	0601	00	0 73023		STO TPCHD	YES
00121	0500	00	0 05533	TCW3	CLA CTRL3	BRING IN 3ND CNTROL
00122	0100	00	0 00144		TZE BEGN	IS IT ZERO
00123	0044	00	0 00000		PAI	
00124	0500	00	0 71566		CLA ONES	L-ALL ONES
00125	0056	00	000001		RNT 1	TEST FOR CR CHAN. E
00126	0020	00	0 00130		TRA *+2	NO
00127	0601	00	0 73016		STO CRCHE	YES
00130	0056	00	000002		RNT 2	TEST FOR PR CHAN. E
00131	0020	00	0 00133		TRA *+2	NO
00132	0601	00	0 73017		STO PRCHE	YES
00133	0056	00	000004		RNT 4	TEST FOR PU CHAN E
00134	0020	00	0 00136		TRA *+2	NO
00135	0601	00	0 73020		STO PUCHE	YES
00136	0056	00	000010		RNT 10	TEST FOR TAPE CHAN E
00137	0020	00	0 00141		TRA *+2	NO
00140	0601	00	0 73021		STO TPCHE	YES
00141	0056	00	001000		RNT 1000	TEST FOR TAPE CHAN F
00142	0020	00	0 00144		TRA *+2	NO
00143	0601	00	0 73024		STO TPCHF	YES
00144	-0500	00	0 72376	BEGN	CAL CMOUT	TO MASK OUT CARD MACHINES
00145	0320	00	0 05531		ANS CTRL1	



00146	0320	00	0	05532	ANS	CTRL2
00147	0320	00	0	05533	ANS	CTRL3



UNIT SELECT NEON ON DS  
 WILL PROBABLY BE UP, AND  
 THE RESET OF DS, RESET.  
 THE CAUSE OF THE TROUBLE  
 MAY BE THAT A ZERO CONTROL  
 WORD DID NOT RESET THE  
 TAPE UNIT TGR.

00212	-0760	00	0	01000		ETTA	
00213	0772	00	0	01200		REWA	
00214	0020	00	0	00216		TRA	*+2
00215	632346216060					BCD 1TCOA	TEST TRANS CHANNEL A IN OPN
00216	0766	00	0	01220	ABLE	WTBA	
00217	0060	00	0	00222		TCOA	*+3 CHAN. SHOULD BE IN OPN.
00220	0074	00	4	06267		TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
00221	-3	00000	0	00216		TXL ABLE	
00222	0540	00	0	71547		RCHA CNTL	NO TGRS ON-WORD. CNT. 1
00223	0060	00	0	00226		TCOA	*+3 SHOULD TRANS.
00224	0074	00	4	06267		TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
00225	-3	00000	0	00216		TXL ABLE	
00226	0060	00	0	00226		TCOA *	IF UNIT RUNS AWAY, OR MACHINE HANGS ON THIS OR ANY PREVIOUS TCOA OPN., BUFFER MAY NOT BE RECEIVING END OPER. FROM SYNC.
00227	0060	00	0	00231		TCOA	*+2 SHOULD NOT TRANS.
00230	0020	00	0	00233		TRA	*+3 OK
00231	0074	00	4	06267		TSX ERROR-1,4	TRANS. IN ERROR-TCOA
00232	-3	00000	0	00216		TXL ABLE	
00233	0020	00	0	00235		TRA	*+2
00234	632345216060					BCD 1TCNA	TEST TRANS. CHAN NOT IN OPN
00235	-0060	00	0	00240	BAKER	TCNA	*+3 SHOULD TRANS.
00236	0074	00	4	06267		TSX ERROR-1,4	FAILED TO TRANS.
00237	-3	00000	0	00235		TXL BAKER	
00240	0766	00	0	01220		WTBA	
00241	-0060	00	0	00243		TCNA	*+2 SHOULD NOT TRANS.
00242	0020	00	0	00245		TRA	*+3 OK
00243	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00244	-3	00000	0	00235		TXL BAKER	
00245	0540	00	0	71550		RCHA CNTL+1	NO TGRS. ON-WRD. CNT. 1
00246	-0060	00	0	00250		TCNA	*+2 SHOULD NOT TRANS.
00247	0020	00	0	00252		TRA	*+3 OK
00250	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00251	-3	00000	0	00235		TXL BAKER	
00252	0060	00	0	00252		TCOA *	

00253	-0060	00	0	00256		TCNA *+3	SHOULD TRANS.
00254	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00255	-3	00000	0	00235		TXL BAKER	
00256	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHES
00257	0020	00	0	00216		TRA ABLE	REPEAT
00260	226363216060					BCD 1BTTA	TEST BEGIN. TAPE
00261	0772	00	0	01200	CHUCK	REWA	
00262	0764	00	0	01200		BSRA	BACKSPACE TO LOAD PT.
00263	0772	00	0	01200		REWA	SHOULD ACT AS NOP
00264	0764	00	0	01200		BSRA	TRY TO BCKSP OVER LD. PT.
00265	0060	00	0	00265		TCOA *	DELAY BEGIN. TAPE TGR. SHOULD BE TURNED ON HERE
00266	0760	00	0	01000		BTTA	
00267	0020	00	0	00272		TRA *+3	OK-SHOULD BE ON
00270	0074	00	4	06267		TSX ERROR-1,4	SHLD NOT SKIP TO ENTER HERE
00271	-3	00000	0	00261		TXL CHUCK	
00272	0760	00	0	01000		BTTA	
00273	0020	00	0	00275		TRA *+2	ERROR-BTT SHOULD BE OFF
00274	0020	00	0	00277		TRA *+3	OK-OFF
00275	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00276	-3	00000	0	00261		TXL CHUCK	
00277	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHES
00300	0020	00	0	00261		TRA CHUCK	
00301	314663606060					BCD 1IOT	TEST I/O CHECK TGR.
00302	0766	00	0	01220	DOG	WTBA	
00303	0540	00	0	71547		RCHA CNTL	NO TGRS. ON-WRD. CNT. 1
00304	0060	00	0	00304		TCOA *	
00305	0544	00	0	71550		LCHA CNTL+1	SHOULD TURN ON IOT
00306	0760	00	0	00005		IOT	
00307	0020	00	0	00312		TRA *+3	SHOULD ENTER HERE-OK
00310	0074	00	4	06267		TSX ERROR-1,4	ERROR-SHOULD NOT SKIP
00311	-3	00000	0	00302		TXL DOG	
00312	0760	00	0	00005		IOT	
00313	0020	00	0	00315		TRA *+2	ERROR-TGR WAS NOT TURNED OFF BY PREVIOUS SEQUENCE
00314	0020	00	0	00317		TRA *+3	OK-TGR SHOULD BE OFF
00315	0074	00	4	06267		TSX ERROR-1,4	
00316	-3	00000	0	00302		TXL DOG	
00317	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHES
00320	0020	00	0	00302		TRA DOG	
00321	662526216060					BCD 1WEFA	TEST WEF BINARY AND BCD
00322	0766	00	0	01200		WTDA	
00323	0540	00	0	71547		RCHA CNTL	NO TGRS. ON-WRD. CNT. 1
00324	0770	00	0	01200		WEFA	
00325	0766	00	0	01220		WTBA	
00326	0540	00	0	71550		RCHA CNTL+1	NO. TGRS ON-WRD. CNT. 1

00327	0770	00	0	01220		WEFA 16	BINARY EOF
00330	0020	00	0	00332		TRA *+2	
00331	226251216060					BCD 1BSRA	
00332	0764	00	0	01220	EASY	BSRA 16	
00333	0764	00	0	01200		BSRA	
00334	0762	00	0	01220		RTBA	
00335	0540	00	0	71552		RCHA CNTLR+1	NO TGRS ON-WRD CNT 2
00336	0060	00	0	00336		TCOA *	
00337	0500	00	0	71570		CLA READ	WORD READ
00340	0560	00	0	71567		LDQ ZEROS	WORD WRITTEN
00341	0340	00	0	71567		CAS ZEROS	
00342	0020	00	0	00344		TRA *+2	ERROR
00343	0020	00	0	00346		TRA *+3	OK
00344	0074	00	4	06266		TSX ERROR-2,4	
00345	0761	00	0	00332		NOP EASY	DO NOT REPEAT
00346	0074	00	4	06344		TSX RDNCK,4	
00347	0020	00	0	00332		TRA EASY	
00350	0030	00	0	00353		TEFA *+3	SHOULD TTRANS
00351	0074	00	4	06267		TSX ERROR-1,4	EOF DID NOT COME UP
00352	-3	00000	0	00365		TXL GEORG	
00353	0020	00	0	00355		TRA *+2	
00354	226226216060					BCD 1BSFA	
00355	-0764	00	0	01200	FOX	BSFA	BKSP OVER EOF
00356	-0764	00	0	01200		BSFA	BKSP OVER EOF AND 1 REC
00357	0764	00	0	01200		BSRA	BKSP OVER 1 REC
00360	0762	00	0	01200		RTDA	
00361	0540	00	0	71552		RCHA CNTLR+1	NO TGRS ON-WRD CNT 2
00362	0060	00	0	00362		TCOA *	TO READ OEN WD AND BCD EOF
00363	0020	00	0	00365		TRA *+2	CONTINUE
00364	632526216060					BCD 1TEFA	TEST EOF TGR + INDICATOR
00365	0030	00	0	00370	GEORG	TEFA *+3	SHOULD TRANS.
00366	0074	00	4	06267		TSX ERROR-1,4	
00367	-3	00000	4	00365		TXL GEORG,4,0	DO NOT REPEAT
00370	0030	00	0	00372		TEFA *+2	SHOULD NOT TRANS.
00371	0020	00	0	00374		TRA *+3	OK
00372	0074	00	4	06267		TSX ERROR-1,4	ERROR-TGR SHOULD BE OFF
00373	-3	00000	4	00365		TXL GEORG,4,0	DO NOT REPEAT
00374	0762	00	0	01220		RTBA	
00375	0540	00	0	71553		RCHA CNTLR+2	NO TGRS ON-WRD CNT 2
							TO READ ONE WD AND BIN EOF
00376	0060	00	0	00376		TCOA *	DELAY
00377	0020	00	0	00401		TRA *+2	
00400	606325262160					BCD 1 TEFA	TEST EOF TGR + INDICATOR
00401	0030	00	0	00404		TEFA *+3	

00402	0074	00	4	06267	TSX ERROR-1,4	
00403	-3	00000	4	00401	TXL *-2,4,0	DO NOT REPEAT
00404	0500	00	0	71570	CLA READ	WORD READ
00405	0560	00	0	71566	LDQ ONES	WORD WRITTEN
00406	0340	00	0	71566	CAS ONES	
00407	0020	00	0	00411	TRA **2	ERROR
00410	0020	00	0	00413	TRA **3	OK
00411	0074	00	4	06266	TSX ERROR-2,4	
00412	0761	00	0	00355	NOP FOX	
00413	0074	00	4	06344	TSX RDNCK,4	TEST RDNCY
00414	0020	00	0	00355	TRA FOX	
00415	0500	00	0	71572	CLA READ+2	WORD READ
00416	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN
00417	0340	00	0	71567	CAS ZEROS	
00420	0020	00	0	00422	TRA **2	ERROR
00421	0020	00	0	00424	TRA **3	OK
00422	0074	00	4	06266	TSX ERROR-2,4	
00423	0761	00	0	00355	NOP FOX	
00424	0074	00	4	06275	TSX OK,4	OUT TO TEST SWITCHES
00425	0020	00	0	00332	TRA EASY	REPEAT
00426	0761	00	0	00000	NOP	
*TEST INSTRUCTIONS CHAN B SYNC						
00427	-0520	00	0	73022	NZT TPCHB	
00430	0020	00	0	00650	TRA CHANC	NO-CHECK CHAN C
00431	0074	00	4	05544	TSX CTX,4	
00432	0006	50	0	00433	HTR **1,0,CHANC	
00433	0020	00	0	00435	TRA **2	
00434	632346226060				BCD 1TCOB	TEST TRANS. CHANNEL BIN OPN
00435	0764	00	0	01200	BSRA	MACHINE MAY HANG UP
00436	0766	00	0	01220	WTBA	IN ONE OR BOTH OF THESE
00437	0540	00	0	72016	RCHA ZERO	ROUTINES. IF A HANG UP
						CONDITION OCCURS THE TAPE
						UNIT SELECT NEON ON DS
						WILL PROBABLY BE UP, AND
						THE RESET OF DS, RESET.
						THE CAUSE OF THE TROUBLE
						MAY BE THAT A ZERO CONTROL
						WORD DID NOT RESET THE
						TAPE UNIT TGR.
00440	-0760	00	0	02000	ETTb	
00441	0772	00	0	02200	REWB	
00442	0766	00	0	02220	HENRY WTBB	
00443	0061	00	0	00446	TCOB **3	CHAN. SHOULD BE IN OPN.
00444	0074	00	4	06267	TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
00445	-3	00000	0	00435	TXL HENRY-5	
00446	0061	00	0	00446	TCOB *	IF UNIT RUNS AWAY, OR
						MACHINE HANGS ON THIS

OR ANY PREVIOUS TCOA  
 OPN., BUFFER MAY NOT BE  
 RECEIVING END OPER. FROM  
 SYNC.

00447	0061	00	0	00451		TCOB *+2	SHOULD NOT TRANS.
00450	0020	00	0	00453		TRA *+3	OK
00451	0074	00	4	06267		TSX ERROR-1,4	TRANS. IN ERROR-TCOA
00452	-3	00000	0	00435		TXL HENRY-5	
00453	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHS
00454	-3	00000	0	00435		TXL HENRY-5	REPEAT
00455	632345226060					BCD 1TCNB	TEST TRANS. CHAN NOT IN OPN
00456	-0061	00	0	00461	INDIA	TCNB *+3	SHOULD TRANS.
00457	0074	00	4	06267		TSX ERROR-1,4	FAILED TO TRANS.
00460	-3	00000	0	00456		TXL INDIA	
00461	0766	00	0	02220		WTBB	
00462	-0061	00	0	00464		TCNB *+2	SHOULD NOT TRANS.
00463	0020	00	0	00466		TRA *+3	OK
00464	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00465	-3	00000	0	00456		TXL INDIA	
00466	-0540	00	0	71550		RCHB CNTL+1	NO TGRS. ON-WRD. CNT. 1
00467	-0061	00	0	00471		TCNB *+2	SHOULD NOT TRANS.
00470	0020	00	0	00473		TRA *+3	OK
00471	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00472	-3	00000	0	00456		TXL INDIA	
00473	0061	00	0	00473		TCOB *	
00474	-0061	00	0	00477		TCNB *+3	SHOULD TRANS.
00475	0074	00	4	06267		TSX ERROR-1,4	
00476	-3	00000	0	00456		TXL INDIA	
00477	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHES
00500	0020	00	0	00456		TRA INDIA	
00501	226363226060					BCD 1BTTB	TEST BEGIN. TAPE
00502	0772	00	0	02200	JULIA	REWB	
00503	0764	00	0	02200		BSRB	BACKSPACE TO LOAD PT.
00504	0772	00	0	02200		REWB	SHOULD ACT AS NOP
00505	0764	00	0	02200		BSRB	TRY TO BCKSP OVER LD. PT.
00506	0061	00	0	00506		TCOB *	DELAY BEGIN. TAPE TGR. SHOULD BE TURNED ON HERE
00507	0760	00	0	02000		BTTB	
00510	0020	00	0	00513		TRA *+3	OK-SHOULD BE ON
00511	0074	00	4	06267		TSX ERROR-1,4	SHLD NOT SKIP TO ENTER HERE
00512	-3	00000	0	00502		TXL JULIA	
00513	0760	00	0	02000		BTTB	
00514	0020	00	0	00516		TRA *+2	ERROR-BTT SHOULD BE OFF
00515	0020	00	0	00520		TRA *+3	OK-OFF
00516	0074	00	4	06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
00517	-3	00000	0	00502		TXL JULIA	

00520	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHES
00521	0020	00	0	00502		TRA JULIA	
00522	314663606060					BCD 1IOT	TEST I/O CHECK TGR.
00523	0766	00	0	02220	KILO	WTBB	
00524	-0540	00	0	71547		RCHB CNTL	NO TGRS. ON-WRD. CNT. 1
00525	0061	00	0	00525		TCOB *	
00526	-0544	00	0	71550		LCHB CNTL+1	SHOULD TURN ON IOT
00527	0760	00	0	00005		IOT	
00530	0020	00	0	00533		TRA *+3	SHOULD ENTER HERE-OK
00531	0074	00	4	06267		TSX ERROR-1,4	ERROR-SHOULD NOT SKIP
00532	-3	00000	0	00523		TXL KILO	
00533	0760	00	0	00005		IOT	
00534	0020	00	0	00536		TRA *+2	ERROR-TGR WAS NOT TURNED OFF BY PREVIOUS SEQUENCE
00535	0020	00	0	00540		TRA *+3	OK-TGR SHOULD BE OFF
00536	0074	00	4	06267		TSX ERROR-1,4	
00537	-3	00000	0	00523		TXL KILO	
00540	0074	00	4	06275		TSX OK,4	OUT TO CHECK SWITCHES
00541	0020	00	0	00523		TRA KILO	
00542	662526226060					BCD 1WEFB	TEST WEF BINARY AND BCD
00543	0766	00	0	02200		WTDB	
00544	-0540	00	0	71547		RCHB CNTL	NO TGRS. ON-WRD. CNT. 1
00545	0770	00	0	02200		WEFB	
00546	0766	00	0	02220		WTBB	
00547	-0540	00	0	71550		RCHB CNTL+1	NO. TGRS ON-WRD. CNT. 1
00550	0770	00	0	02220		WEFB 16	BINARY EOF
00551	0020	00	0	00553		TRA *+2	
00552	226251226060					BCD 1BSRB	
00553	0764	00	0	02220	LIMA	BSRB 16	
00554	0764	00	0	02200		BSRB	
00555	0762	00	0	02220		RTBB	
00556	-0540	00	0	71552		RCHB CNTLR+1	NO TGRS ON-WRD CNT 2
00557	0061	00	0	00557		TCOB *	
00560	0500	00	0	71570		CLA READ	WORD READ
00561	0560	00	0	71567		LDQ ZEROS	WORD WRITTEN
00562	0340	00	0	71567		CAS ZEROS	
00563	0020	00	0	00565		TRA *+2	ERROR
00564	0020	00	0	00567		TRA *+3	OK
00565	0074	00	4	06266		TSX ERROR-2,4	
00566	0761	00	0	00553		NOP LIMA	DO NOT REPEAT
00567	0074	00	4	06344		TSX RDNCK,4	
00570	0020	00	0	00553		TRA LIMA	
00571	-0030	00	0	00574		TEFB *+3	
00572	0074	00	4	06267		TSX ERROR-1,4	
00573	-3	00000	0	00606		TXL NOV	
00574	0020	00	0	00576		TRA *+2	



00575	226251226060		BCD 1BSRB	
00576	-0764 00 0 02200	MIKE	BSFB	BKSP OVER EOF
00577	-0764 00 0 02200		BSFB	BKSP OVER EOF AND 1 REC
00600	0764 00 0 02200		BSRB	BKSP OVER 1 REC
00601	0762 00 0 02200		RTDB	
00602	-0540 00 0 71552		RCHB CNTLR+1	NO TGRS ON-WRD CNT 2
00603	0061 00 0 00603		TCOB *	TO READ OEN WD AND BCD EOF
00604	0020 00 0 00606		TRA *+2	CONTINUE
00605	632526226060		BCD 1TEFB	TEST EOF TGR + INDICATOR
00606	-0030 00 0 00611	NOV	TEFB *+3	SHOULD TRANS.
00607	0074 00 4 06267		TSX ERROR-1,4	ERROR TGR SHOULD BE OFF
00610	-3 00000 4 00606		TXL NOV,4,0	DO NOT REPEAT
00611	-0030 00 0 00613		TEFB *+2	SHOULD NOT TRANS.
00612	0020 00 0 00615		TRA *+3	OK
00613	0074 00 4 06267		TSX ERROR-1,4	ERROR-TGR SHOULD BE OFF
00614	-3 00000 4 00606		TXL NOV,4,0	DO NOT REPEAT
00615	0762 00 0 02220		RTBB	
00616	-0540 00 0 71553		RCHB CNTLR+2	NO TGRS ON-WRD CNT 2 TO READ ONE WD AND BIN EOF
00617	0061 00 0 00617		TCOB *	DELAY
00620	0020 00 0 00622		TRA *+2	
00621	606325262260		BCD 1 TEFB	TEST EOF TGR + INDICATOR
00622	-0030 00 0 00625		TEFB *+3	
00623	0074 00 4 06267		TSX ERROR-1,4	
00624	-3 00000 4 00622		TXL *-2,4,0	DO NOT REPEAT
00625	0500 00 0 71570		CLA READ	WORD READ
00626	0560 00 0 71566		LDQ ONES	WORD WRITTEN
00627	0340 00 0 71566		CAS ONES	
00630	0020 00 0 00632		TRA *+2	ERROR
00631	0020 00 0 00634		TRA *+3	OK
00632	0074 00 4 06266		TSX ERROR-2,4	
00633	0761 00 0 00576		NOP MIKE	
00634	0074 00 4 06344		TSX RDNCK,4	TEST RDNCY
00635	0020 00 0 00576		TRA MIKE	
00636	0500 00 0 71572		CLA READ+2	WORD READ
00637	0560 00 0 71567		LDQ ZEROS	WORD WRITTEN
00640	0340 00 0 71567		CAS ZEROS	
00641	0020 00 0 00643		TRA *+2	ERROR
00642	0020 00 0 00645		TRA *+3	OK
00643	0074 00 4 06266		TSX ERROR-2,4	
00644	0761 00 0 00606		NOP NOV	
00645	0074 00 4 06275		TSX OK,4	OUT TO TEST SWITCHES
00646	0020 00 0 00553		TRA LIMA	REPEAT
00647	0761 00 0 00000		NOP	
00650	-0520 00 0 73015	CHANC NZT TPCHC		TEST FOR TAPE CHAN C

00651	0020	00	0	01073	TRA CHAND	NO-CHECK CHAN D
00652	0074	00	4	05544	TSX CTX, 4	
00653	0010	73	0	00654	HTR *+1, 0, CHAND	
00654	0772	00	0	03200	REWC	MACHINE MAY HANG UP
00655	0764	00	0	03200	BSRC	IN ONE OR BOTH OF THESE
00656	0766	00	0	03220	WTBC	ROUTINES. IF A HANG UP
00657	0541	00	0	72016	RCHC ZERO	CONDITION OCCURS THE TAPE
						UNIT SELECT NEON ON
						THE DSC WILL PROBABLY
						BE ON, AND THE RESET OF
						DSC RESET.
						THE CAUSE IS PROBABLY
						DUE TO THE FACT THAT
						RESETTING CHANNEL WITH
						ZERO CONTROL DID NOT RESET
						THE UNIT SELECT TRIGGER
00660	-0760	00	0	03000	ETTC	
00661	0772	00	0	03200	REWC	
00662	0020	00	0	00664	TRA *+2	
00663	632346236060				BCD 1TCOC	TEST TRANS CHAN. C IN OPN.
00664	0766	00	0	03220	STCC WTBC	
00665	0062	00	0	00670	TCOC *+3	CHAN. SHOULD BE IN OPN.
00666	0074	00	4	06267	TSX ERROR-1, 4	FAILED TO TRANS. IN OPN.
00667	-3	00000	0	00664	TXL STCC	
00670	0541	00	0	71547	RCHC CNTL	NO INDS ON-WORD CNT. 1
00671	0062	00	0	00674	TCOC *+3	SHOULD TRANS.
00672	0074	00	4	06267	TSX ERROR-1, 4	FAILED TO TRANS. IN OPN.
00673	-3	00000	0	00664	TXL STCC	
00674	0062	00	0	00674	TCOC *	
00675	0062	00	0	00677	TCOC *+2	SHOULD NOT TRANS.
00676	0020	00	0	00701	TRA *+3	OK
00677	0074	00	4	06267	TSX ERROR-1, 4	TRANS. IN ERROR-TCOA
00700	-3	00000	0	00664	TXL STCC	
00701	0020	00	0	00703	TRA *+2	
00702	632345236060				BCD 1TCNC	
00703	-0062	00	0	00706	STCC1 TCNC *+3	SHOULD TRANS.
00704	0074	00	4	06267	TSX ERROR-1, 4	FAILED TO TRANS.
00705	-3	00000	0	00703	TXL STCC1	
00706	0766	00	0	03220	WTBC	
00707	-0062	00	0	00711	TCNC *+2	SHOULD NOT TRANS.
00710	0020	00	0	00713	TRA *+3	OK
00711	0074	00	4	06267	TSX ERROR-1, 4	SHOULD NOT ENTER HERE
00712	-3	00000	0	00703	TXL STCC1	
00713	0541	00	0	71550	RCHC CNTL+1	NO TGRS. ON-WRD. CNT. 1
00714	-0062	00	0	00716	TCNC *+2	SHOULD NOT TRANS.

00715	0020	00	0	00720	TRA	++3	OK
00716	0074	00	4	06267	TSX	ERROR-1,4	SHOULD NOT ENTER HERE
00717	-3	00000	0	00703	TXL	STCC1	
00720	0062	00	0	00720	TCOC	*	
00721	-0062	00	0	00724	TCNC	++3	SHOULD TRANS.
00722	0074	00	4	06267	TSX	ERROR-1,4	
00723	-3	00000	0	00703	TXL	STCC1	
00724	0074	00	4	06275	TSX	OK,4	
00725	0020	00	0	00703	TRA	STCC1	
00726	226363236060				BCD	1BTTC	
00727	0772	00	0	03200	STCC2	REWC	REWIND
00730	0764	00	0	03200	BSRC		BACKSPACE TO LD. PT.
00731	0772	00	0	03200	REWC		SHOULD ACT AS NOP
00732	0764	00	0	03200	BSRC		TRY TO BCKSP OVER LD. PT. BEGIN TAPE IND. SHOULD BE TURNED ON HERE
00733	0062	00	0	00733	TCOC	*	
00734	0760	00	0	03000	BTTC		
00735	0020	00	0	00740	TRA	++3	OK-SHOULD BE ON
00736	0074	00	4	06267	TSX	ERROR-1,4	SHLD NOT SKIP TO ENTER HERE
00737	-3	00000	0	00727	TXL	STCC2	
00740	0760	00	0	03000	BTTC		
00741	0020	00	0	00743	TRA	++2	ERROR-BTT SHOULD BE OFF
00742	0020	00	0	00745	TRA	++3	OK-OFF
00743	0074	00	4	06267	TSX	ERROR-1,4	SHOULD NOT ENTER HERE
00744	-3	00000	0	00727	TXL	STCC2	
00745	0074	00	4	06275	TSX	OK,4	OUT TO CHECK SWITCHES
00746	0020	00	0	00727	TRA	STCC2	
00747	314663606060				BCD	1IOT	TEST I/O CHECK TGR.
00750	0766	00	0	03220	STTC3	WTBC	
00751	0541	00	0	71547	RCHC	CNTL	NO TGRS. ON-WRD. CNT. 1
00752	0062	00	0	00752	TCOC	*	
00753	0545	00	0	71550	LCHC	CNTL+1	SHOULD TURN ON IOT
00754	0760	00	0	00005	IOT		
00755	0020	00	0	00760	TRA	++3	SHOULD ENTER HERE-OK
00756	0074	00	4	06267	TSX	ERROR-1,4	ERROR-SHOULD NOT SKIP
00757	-3	00000	0	00750	TXL	STTC3	
00760	0760	00	0	00005	IOT		
00761	0020	00	0	00763	TRA	++2	ERROR-TGR WAS NOT TURNED OFF BY PREVIOUS SEQUENCE
00762	0020	00	0	00765	TRA	++3	OK-TGR SHOULD BE OFF
00763	0074	00	4	06267	TSX	ERROR-1,4	
00764	-3	00000	0	00750	TXL	STTC3	
00765	0074	00	4	06275	TSX	OK,4	OUT TO CHECK SWITCHES
00766	0020	00	0	00750	TRA	STTC3	
00767	662526236060				BCD	1WEFC	TEST WEF BINARY AND BCD

BCD TO MAKE CERTAIN  
 THEY BOTH WORK IN BCD  
 MODE

00770	0766	00	0	03200	WTDC	
00771	0541	00	0	71547	RCHC CNTL	NO TGRS. ON-WRD. CNT. 1
00772	0770	00	0	03200	WEFC	
00773	0766	00	0	03220	WTBC	
00774	0541	00	0	71550	RCHC CNTL+1	NO. TGRS ON-WRD. CNT. 1
00775	0770	00	0	03220	WEFC 16	BINARY EOF
00776	0020	00	0	01000	TRA *+2	
00777	226251236060				BCD 1BSRC	
01000	0764	00	0	03220	STTC4 BSRC 16	
01001	0764	00	0	03200	BSRC	
01002	0762	00	0	03220	RTBC	
01003	0541	00	0	71552	RCHC CNTLR+1	NO TGRS ON-WRD CNT 2
01004	0062	00	0	01004	TCOC *	
01005	0500	00	0	71570	CLA READ	WORD READ
01006	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN
01007	0340	00	0	71567	CAS ZEROS	
01010	0020	00	0	01012	TRA *+2	ERROR
01011	0020	00	0	01014	TRA *+3	OK
01012	0074	00	4	06266	TSX ERROR-2,4	
01013	0761	00	0	01000	NOP STTC4	DO NOT REPEAT
01014	0074	00	4	06344	TSX RDNCK,4	
01015	0020	00	0	01000	TRA STTC4	
01016	0031	00	0	01021	TEFC *+3	
01017	0074	00	4	06267	TSX ERROR-1,4	
01020	-3	00000	0	01000	TXL STTC4	
01021	0020	00	0	01023	TRA *+2	
01022	226226236060				BCD 1BSFC	
01023	-0764	00	0	03200	STTC5 BSFC	BKSP OVER EOF
01024	-0764	00	0	03200	BSFC	BKSP OVER EOF AND 1 REC
01025	0764	00	0	03200	BSRC	BKSP OVER 1 REC
01026	0762	00	0	03200	RTDC	
01027	0541	00	0	71552	RCHC CNTLR+1	NO TGRS ON-WRD CNT 2
01030	0062	00	0	01030	TCOC *	TO READ OEN WD AND BCD EOF
01031	0020	00	0	01033	TRA *+2	CONTINUE
01032	632526236060				BCD 1TEFC	TEST EOF TGR + INDICATOR
01033	0031	00	0	01036	STTC6 TEFC *+3	SHOULD TRANS.
01034	0074	00	4	06267	TSX ERROR-1,4	
01035	-3	00000	4	01033	TXL STTC6,4	
01036	0031	00	0	01040	TEFC *+2	SHOULD NOT TRANS.
01037	0020	00	0	01042	TRA *+3	OK
01040	0074	00	4	06267	TSX ERROR-1,4	
01041	-3	00000	4	01033	TXL STTC6,4	

01042	0762	00	0	03220	RTBC	
01043	0541	00	0	71553	RCHC CNTLR+2	NO TGRS ON-WRD CNT 2
						TO READ ONE WD AND BIN EOF
01044	0062	00	0	01044	TCOC *	DELAY
01045	0031	00	0	01050	TEFC *+3	
01046	0074	00	4	06267	TSX ERROR-1,4	
01047	-3	00000	4	01033	TXL STTC6,4	
01050	0500	00	0	71570	CLA READ	WORD READ
01051	0560	00	0	71566	LDQ ONES	WORD WRITTEN
01052	0340	00	0	71566	CAS ONES	
01053	0020	00	0	01055	TRA *+2	ERROR
01054	0020	00	0	01057	TRA *+3	OK
01055	0074	00	4	06266	TSX ERROR-2,4	
01056	0761	00	0	01023	NOP STTC5	
01057	0074	00	4	06344	TSX RDNCK,4	TEST RDNCY
01060	0020	00	0	01023	TRA STTC5	
01061	0500	00	0	71572	CLA READ+2	WORD READ
01062	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN
01063	0340	00	0	71567	CAS ZEROS	
01064	0020	00	0	01066	TRA *+2	ERROR
01065	0020	00	0	01070	TRA *+3	OK
01066	0074	00	4	06266	TSX ERROR-2,4	
01067	0761	00	0	01023	NOP STTC5	
01070	0074	00	4	06275	TSX OK,4	OUT TO TEST SWITCHES
01071	0020	00	0	01000	TRA STTC4	REPEAT
01072	0761	00	0	00000	NOP	
01073	-0520	00	0	73023	CHAND NZT TPCHD	TEST FOR TAPE CHAN D
01074	0020	00	0	01316	TRA CHANE	NO
01075	0074	00	4	05544	TSX CTX,4	
01076	0013	16	0	01077	HTR *+1,0,CHANE	
01077	0772	00	0	04200	REWD	MACHINE MAY HANG UP
01100	0764	00	0	04200	BSRD	IN ONE OR BOTH OF THESE
01101	0766	00	0	04220	WTBD	ROUTINES. IF A HANG UP
01102	-0541	00	0	72016	RCHD ZERO	CONDITION OCCURS THE TAPE
						UNIT SELECT NEON ON
						THE DSC WILL PROBABLY
						BE ON, AND THE RESET OF
						DSC RESET.
						THE CAUSE IS PROBABLY
						DUE TO THE FACT THAT
						RESETTING CHANNEL WITH
						ZERO CONTROL DID NOT RESET
						THE UNIT SELECT TRIGGER
01103	-0760	00	0	04000	ETTD	
01104	0772	00	0	04200	REWD	
01105	0020	00	0	01107	TRA *+2	
01106	632346246060				BCD 1TCOD	TEST TRANS CHAN. D IN OPN.
01107	0766	00	0	04220	STDC WTBD	

01110	0063	00	0	01113	TCOD *+3	CHAN. SHOULD BE IN OPN.
01111	0074	00	4	06267	TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
01112	-3	00000	0	01107	TXL STDC	
01113	-0541	00	0	71547	RCHD CNTL	NO INDS ON-WORD CNT. 1
01114	0063	00	0	01117	TCOD *+3	SHOULD TRANS.
01115	0074	00	4	06267	TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
01116	-3	00000	0	01107	TXL STDC	
01117	0063	00	0	01117	TCOD *	
01120	0063	00	0	01122	TCOD *+2	SHOULD NOT TRANS.
01121	0020	00	0	01124	TRA *+3	OK
01122	0074	00	4	06267	TSX ERROR-1,4	TRANS. IN ERROR-TCOA
01123	-3	00000	0	01107	TXL STDC	
01124	0020	00	0	01126	TRA *+2	
01125	632345246060				BCD 1TCND	
01126	-0063	00	0	01131	STDC1 TCND *+3	SHOULD TRANS.
01127	0074	00	4	06267	TSX ERROR-1,4	FAILED TO TRANS.
01130	-3	00000	0	01126	TXL STDC1	
01131	0766	00	0	04220	WTBD	
01132	-0063	00	0	01134	TCND *+2	SHOULD NOT TRANS.
01133	0020	00	0	01136	TRA *+3	OK
01134	0074	00	4	06267	TSX ERROR-1,4	SHOULD NOT ENTER HERE
01135	-3	00000	0	01126	TXL STDC1	
01136	-0541	00	0	71550	RCHD CNTL+1	NO TGRS. ON-WRD. CNT. 1
01137	-0063	00	0	01141	TCND *+2	SHOULD NOT TRANS.
01140	0020	00	0	01143	TRA *+3	OK
01141	0074	00	4	06267	TSX ERROR-1,4	SHOULD NOT ENTER HERE
01142	-3	00000	0	01126	TXL STDC1	
01143	0063	00	0	01143	TCOD *	
01144	-0063	00	0	01147	TCND *+3	SHOULD TRANS.
01145	0074	00	4	06267	TSX ERROR-1,4	
01146	-3	00000	0	01126	TXL STDC1	
01147	0074	00	4	06275	TSX OK,4	
01150	0020	00	0	01126	TRA STDC1	
01151	226363246060				BCD 1BTDD	
01152	0772	00	0	04200	STDC2 REWD	REWIND
01153	0764	00	0	04200	BSRD	BACKSPACE TO LD. PT.
01154	0772	00	0	04200	REWD	SHOULD ACT AS NOP
01155	0764	00	0	04200	BSRD	TRY TO BCKSP OVER LD. PT. BEGIN TAPE IND. SHOULD BE TURNED ON HERE
01156	0063	00	0	01156	TCOD *	
01157	0760	00	0	04000	BTDD	
01160	0020	00	0	01163	TRA *+3	OK-SHOULD BE ON
01161	0074	00	4	06267	TSX ERROR-1,4	SHLD NOT SKIP TO ENTER HERE

01162	-3	00000	0	01152	TXL	STDC2	
01163	0760	00	0	03000	BTTC		
01164	0020	00	0	01166	TRA	*+2	ERROR-BTT SHOULD BE OFF
01165	0020	00	0	01170	TRA	*+3	OK-OFF
01166	0074	00	4	06267	TSX	ERROR-1,4	SHOULD NOT ENTER HERE
01167	-3	00000	0	01152	TXL	STDC2	
01170	0074	00	4	06275	TSX	OK,4	OUT TO CHECK SWITCHES
01171	0020	00	0	01152	TRA	STDC2	
01172	314663606060				BCD	1IOT	TEST I/O CHECK TGR.
01173	0766	00	0	04220	STTD3	WTBD	
01174	-0541	00	0	71547	RCHD	CNTL	NO TGRS. ON-WRD. CNT. 1
01175	0063	00	0	01175	TCOD	*	
01176	-0545	00	0	71550	LCHD	CNTL+1	SHOULD TURN ON IOT
01177	0760	00	0	00005	IOT		
01200	0020	00	0	01203	TRA	*+3	SHOULD ENTER HERE-OK
01201	0074	00	4	06267	TSX	ERROR-1,4	ERROR-SHOULD NOT SKIP
01202	-3	00000	0	01173	TXL	STTD3	
01203	0760	00	0	00005	IOT		
01204	0020	00	0	01206	TRA	*+2	ERROR-TGR WAS NOT TURNED OFF BY PREVIOUS SEQUENCE
01205	0020	00	0	01210	TRA	*+3	OK-TGR SHOULD BE OFF
01206	0074	00	4	06267	TSX	ERROR-1,4	
01207	-3	00000	0	01173	TXL	STTD3	
01210	0074	00	4	06275	TSX	OK,4	OUT TO CHECK SWITCHES
01211	0020	00	0	01173	TRA	STTD3	
01212	662526246060				BCD	1WEFD	TEST WEF BINARY AND BCD TO MAKE CERTAIN THEY BOTH WORK IN BCD MODE
01213	0766	00	0	04200	WTDD		
01214	-0541	00	0	71547	RCHD	CNTL	NO TGRS. ON-WRD. CNT. 1
01215	0770	00	0	04200	WEFD		
01216	0766	00	0	04220	WTBD		
01217	-0541	00	0	71550	RCHD	CNTL+1	NO. TGRS ON-WRD. CNT. 1
01220	0770	00	0	04220	WEFD	16	BINARY EOF
01221	0020	00	0	01223	TRA	*+2	
01222	226251246060				BCD	1BSRD	
01223	0764	00	0	04220	STTD4	BSRD 16	
01224	0764	00	0	04200	BSRD		
01225	0762	00	0	04220	RTBD		
01226	-0541	00	0	71552	RCHD	CNTLR+1	NO TGRS ON-WRD CNT 2
01227	0063	00	0	01227	TCOD	*	
01230	0500	00	0	71570	CLA	READ	WORD READ
01231	0560	00	0	71567	LDQ	ZEROS	WORD WRITTEN
01232	0340	00	0	71567	CAS	ZEROS	
01233	0020	00	0	01235	TRA	*+2	ERROR
01234	0020	00	0	01237	TRA	*+3	OK

01235	0074	00	4	06266	TSX ERROR-2,4	
01236	0761	00	0	01223	NOP STTD4	DO NOT REPEAT
01237	0074	00	4	06344	TSX RDNCK,4	
01240	0020	00	0	01223	TRA STTD4	
01241	-0031	00	0	01244	TEFD *+3	
01242	0074	00	4	06267	TSX ERROR-1,4	
01243	-3	00000	0	01223	TXL STTD4	
01244	0020	00	0	01246	TRA *+2	
01245	226226246060				BCD 1BSFD	
01246	-0764	00	0	04200	STTD5 BSFD	BKSP OVER EOF
01247	-0764	00	0	04200	BSFD	BKSP OVER EOF AND 1 REC
01250	0764	00	0	04200	BSRD	BKSP OVER 1 REC
01251	0762	00	0	04200	RTDD	
01252	-0541	00	0	71552	RCHD CNTLR+1	NO TGRS ON-WRD CNT 2
01253	0063	00	0	01253	TCOD *	TO READ OEN WD AND BCD EOF
01254	0020	00	0	01256	TRA *+2	CONTINUE
01255	632526246060				BCD 1TEFD	TEST EOF TGR + INDICATOR
01256	-0031	00	0	01261	STTD6 TEFD *+3	SHOULD TRANS.
01257	0074	00	4	06267	TSX ERROR-1,4	
01260	-3	00000	4	01256	TXL STTD6,4	
01261	-0031	00	0	01263	TEFD *+2	SHOULD NOT TRANS.
01262	0020	00	0	01265	TRA *+3	OK
01263	0074	00	4	06267	TSX ERROR-1,4	
01264	-3	00000	4	01256	TXL STTD6,4	
01265	0762	00	0	04220	RTBD	
01266	-0541	00	0	71553	RCHD CNTLR+2	NO TGRS ON-WRD CNT 2
01267	0063	00	0	01267	TCOD *	TO READ ONE WD AND BIN EOF DELAY
01270	-0031	00	0	01273	TEFD *+3	
01271	0074	00	4	06267	TSX ERROR-1,4	
01272	-3	00000	4	01256	TXL STTD6,4	
01273	0500	00	0	71570	CLA READ	WORD READ
01274	0560	00	0	71566	LDQ ONES	WORD WRITTEN
01275	0340	00	0	71566	CAS ONES	
01276	0020	00	0	01300	TRA *+2	ERROR
01277	0020	00	0	01302	TRA *+3	OK
01300	0074	00	4	06266	TSX ERROR-2,4	
01301	0761	00	0	01246	NOP STTD5	
01302	0074	00	4	06344	TSX RDNCK,4	TEST RDNCY
01303	0020	00	0	01246	TRA STTD5	
01304	0500	00	0	71572	CLA READ+2	WORD READ
01305	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN
01306	0340	00	0	71567	CAS ZEROS	
01307	0020	00	0	01311	TRA *+2	ERROR
01310	0020	00	0	01313	TRA *+3	OK
01311	0074	00	4	06266	TSX ERROR-2,4	



01312	0761	00	0	01246	NOP	STTD5	
01313	0074	00	4	06275	TSX	OK, 4	OUT TO TEST SWITCHES
01314	0020	00	0	01223	TRA	STTD4	REPEAT
01315	0761	00	0	00000	NOP		
01316	-0520	00	0	73021	CHANE	NZT TPCHE	TEST FOR TAPE CHAN E
01317	0020	00	0	01541	TRA	CHANF	NO-CHECK CHAN F
01320	0074	00	4	05544	TSX	CTX, 4	
01321	0015	41	0	01322	HTR	*+1, 0, CHANF	
01322	0772	00	0	05200	REWE		MACHINE MAY HANG UP
01323	0764	00	0	05200	BSRE		IN ONE OR BOTH OF THESE
01324	0766	00	0	05220	WTBE		ROUTINES. IF A HANG UP
01325	0542	00	0	72016	RCHE	ZERO	CONDITION OCCURS THE TAPE
							UNIT SELECT NEON ON
							THE DSC WILL PROBABLY
							BE UP, AND THE REST OF
							DSC, RESET.
							THE CAUSE IS PROBABLY
							DUE TO THE FACT THAT
							RESETTING CHANNEL WITH
							ZERO CONTROL DID NOT RESET
							THE UNIT SELECT TRIGGER.
01326	-0760	00	0	05000	ETTE		
01327	0772	00	0	05200	REWE		
01330	0020	00	0	01332	TRA	*+2	
01331	632346256060				BCD	1TCOE	TEST TRANS CHAN. E IN OPN.
01332	0766	00	0	05220	STEC	WTBE	
01333	0064	00	0	01336	TCOE	*+3	CHAN. SHOULD BE IN OPN.
01334	0074	00	4	06267	TSX	ERROR-1, 4	FAILED TO TRANS. IN OPN.
01335	-3	00000	0	01332	TXL	STEC	
01336	0542	00	0	71547	RCHE	CNTL	NO INDS ON-WORD CNT. 1
01337	0064	00	0	01342	TCOE	*+3	SHOULD TRANS.
01340	0074	00	4	06267	TSX	ERROR-1, 4	FAILED TO TRANS. IN OPN.
01341	-3	00000	0	01332	TXL	STEC	
01342	0064	00	0	01342	TCOE	*	
01343	0064	00	0	01345	TCOE	*+2	SHOULD NOT TRANS.
01344	0020	00	0	01347	TRA	*+3	OK
01345	0074	00	4	06267	TSX	ERROR-1, 4	TRANS. IN ERROR-TCOA
01346	-3	00000	0	01332	TXL	STEC	
01347	0020	00	0	01351	TRA	*+2	
01350	632345256060				BCD	1TCNE	
01351	-0064	00	0	01354	STEC1	TCNE *+3	SHOULD TRANS.
01352	0074	00	4	06267	TSX	ERROR-1, 4	FAILED TO TRANS.
01353	-3	00000	0	01351	TXL	STEC1	
01354	0766	00	0	05220	WTBE		
01355	-0064	00	0	01357	TCNE	*+2	SHOULD NOT TRANS.
01356	0020	00	0	01361	TRA	*+3	OK

01357	0074	00	4	06267	TSX ERROR-1,4	SHOULD NOT ENTER HERE
01360	-3	00000	0	01351	TXL STEC1	
01361	0542	00	0	71550	RCHE CNTL+1	NO TGRS. ON-WRD. CNT. 1
01362	-0064	00	0	01364	TCNE *+2	SHOULD NOT TRANS.
01363	0020	00	0	01366	TRA *+3	OK
01364	0074	00	4	06267	TSX ERROR-1,4	SHOULD NOT ENTER HERE
01365	-3	00000	0	01351	TXL STEC1	
01366	0064	00	0	01366	TCOE *	
01367	-0064	00	0	01372	TCNE *+3	SHOULD TRANS.
01370	0074	00	4	06267	TSX ERROR-1,4	
01371	-3	00000	0	01351	TXL STEC1	
01372	0074	00	4	06275	TSX OK,4	
01373	0020	00	0	01351	TRA STEC1	
01374	226363256060				BCD 1BTTE	
01375	0772	00	0	05200	STEC2 REWE	REWIND
01376	0764	00	0	05200	BSRE	BACKSPACE TO LD. PT.
01377	0772	00	0	05200	REWE	SHOULD ACT AS NOP
01400	0764	00	0	05200	BSRE	TRY TO BCKSP OVER LD. PT. BEGIN TAPE IND. SHOULD BE TURNED ON HERE
01401	0064	00	0	01401	TCOE *	
01402	0760	00	0	05000	BTTE	
01403	0020	00	0	01406	TRA *+3	OK-SHOULD BE ON
01404	0074	00	4	06267	TSX ERROR-1,4	SHLD NOT SKIP TO ENTER HERE
01405	-3	00000	0	01375	TXL STEC2	
01406	0760	00	0	05000	BTTE	
01407	0020	00	0	01411	TRA *+2	ERROR-BTT SHOULD BE OFF
01410	0020	00	0	01413	TRA *+3	OK-OFF
01411	0074	00	4	06267	TSX ERROR-1,4	SHOULD NOT ENTER HERE
01412	-3	00000	0	01375	TXL STEC2	
01413	0074	00	4	06275	TSX OK,4	OUT TO CHECK SWITCHES
01414	0020	00	0	01375	TRA STEC2	
01415	314663606060				BCD 1IOT	TEST I/O CHECK TGR.
01416	0766	00	0	05220	STTE3 WTBE	
01417	0542	00	0	71547	RCHE CNTL	NO TGRS. ON-WRD. CNT. 1
01420	0064	00	0	01420	TCOE *	
01421	0546	00	0	71550	LCHE CNTL+1	SHOULD TURN ON IOT
01422	0760	00	0	00005	IOT	
01423	0020	00	0	01426	TRA *+3	SHOULD ENTER HERE-OK
01424	0074	00	4	06267	TSX ERROR-1,4	ERROR-SHOULD NOT SKIP
01425	-3	00000	0	01416	TXL STTE3	
01426	0760	00	0	00005	IOT	
01427	0020	00	0	01431	TRA *+2	ERROR-TGR WAS NOT TURNED OFF BY PREVIOUS SEQUENCE
01430	0020	00	0	01433	TRA *+3	OK-TGR SHOULD BE OFF
01431	0074	00	4	06267	TSX ERROR-1,4	

01432	-3	00000	0	01416	TXL	STTE3	
01433	0074	00	4	06275	TSX	OK, 4	OUT TO CHECK SWITCHES
01434	0020	00	0	01416	TRA	STTE3	
01435	662526256060				BCD	1WEFE	TEST WEF BINARY AND BCD TO MAKE CERTAIN THEY BOTH WORK IN BCD MODE
01436	0766	00	0	05200	WTDE		
01437	0542	00	0	71547	RCHE	CNTL	NO TGRS. ON-WRD. CNT. 1
01440	0770	00	0	05200	WEFE		
01441	0766	00	0	05220	WTBE		
01442	0542	00	0	71550	RCHE	CNTL+1	NO. TGRS ON-WRD. CNT. 1
01443	0770	00	0	05220	WEFE	16	BINARY EOF
01444	0020	00	0	01446	TRA	*+2	
01445	226251256060				BCD	1BSRE	
01446	0764	00	0	05220	STTE4	BSRE	16
01447	0764	00	0	05200	BSRE		
01450	0762	00	0	05220	RTBE		
01451	0542	00	0	71552	RCHE	CNTLR+1	NO TGRS ON-WRD CNT 2
01452	0064	00	0	01452	TCOE	*	
01453	0500	00	0	71570	CLA	READ	WORD READ
01454	0560	00	0	71567	LDQ	ZEROS	WORD WRITTEN
01455	0340	00	0	71567	CAS	ZEROS	
01456	0020	00	0	01460	TRA	*+2	ERROR
01457	0020	00	0	01462	TRA	*+3	OK
01460	0074	00	4	06266	TSX	ERROR-2, 4	
01461	0761	00	0	01446	NOP	STTE4	DO NOT REPEAT
01462	0074	00	4	06344	TSX	RDNCK, 4	
01463	0020	00	0	01446	TRA	STTE4	
01464	0031	00	0	01467	TEFC	*+3	
01465	0074	00	4	06267	TSX	ERROR-1, 4	
01466	-3	00000	0	01446	TXL	STTE4	
01467	0020	00	0	01471	TRA	*+2	
01470	226226256060				BCD	1BSFE	
01471	-0764	00	0	05200	STTE5	BSFE	BKSP OVER EOF
01472	-0764	00	0	05200	BSFE		BKSP OVER EOF AND 1 REC
01473	0764	00	0	05200	BSRE		BKSP OVER 1 REC
01474	0762	00	0	05200	RTDE		
01475	0542	00	0	71552	RCHE	CNTLR+1	NO TGRS ON-WRD CNT 2
01476	0064	00	0	01476	TCOE	*	TO READ OEN WD AND BCD EOF
01477	0020	00	0	01501	TRA	*+2	CONTINUE
01500	632526256060				BCD	1TEFE	TEST EOF TGR + INDICATOR
01501	0032	00	0	01504	STTE6	TEFE	*+3
01502	0074	00	4	06267	TSX	ERROR-1, 4	SHOULD TRANS.
01503	-3	00000	4	01501	TXL	STTE6, 4	

01504	0032	00	0	01506	TEFE *+2	SHOULD NOT TRANS.
01505	0020	00	0	01510	TRA *+3	OK
01506	0074	00	4	06267	TSX ERROR-1,4	
01507	-3	00000	4	01501	TXL STTE6,4	
01510	0762	00	0	05220	RTBE	
01511	0542	00	0	71553	RCHE CNTLR+2	NO TGRS ON-WRD CNT 2 TO READ ONE WD AND BIN EOF
01512	0064	00	0	01512	TCOE *	DELAY
01513	0032	00	0	01516	TEFE *+3	
01514	0074	00	4	06267	TSX ERROR-1,4	
01515	-3	00000	4	01501	TXL STTE6,4	
01516	0500	00	0	71570	CLA READ	WORD READ
01517	0560	00	0	71566	LDQ ONES	WORD WRITTEN
01520	0340	00	0	71566	CAS ONES	
01521	0020	00	0	01523	TRA *+2	ERROR
01522	0020	00	0	01525	TRA *+3	OK
01523	0074	00	4	06266	TSX ERROR-2,4	
01524	0761	00	0	01471	NOP STTE5	
01525	0074	00	4	06344	TSX RDNCK,4	TEST RDNCY
01526	0020	00	0	01471	TRA STTE5	
01527	0500	00	0	71572	CLA READ+2	WORD READ
01530	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN
01531	0340	00	0	71567	CAS ZEROS	
01532	0020	00	0	01534	TRA *+2	ERROR
01533	0020	00	0	01536	TRA *+3	OK
01534	0074	00	4	06266	TSX ERROR-2,4	
01535	0761	00	0	01471	NOP STTE5	
01536	0074	00	4	06275	TSX OK,4	OUT TO TEST SWITCHES
01537	0020	00	0	01446	TRA STTE4	REPEAT
01540	0761	00	0	00000	NOP	
01541	-0520	00	0	73024	CHANF NZT TPCHF	TEST FOR TAPE CHAN F
01542	0020	00	0	01764	TRA CRAZY-6	
01543	0074	00	4	05544	TSX CTX,4	
01544	0017	72	0	01545	HTR *+1,0,CRAZY	
01545	0772	00	0	06200	REWF	MACHINE MAY HANG UP
01546	0764	00	0	06200	BSRF	IN ONE OR BOTH OF THESE
01547	0766	00	0	06220	WTBF	ROUTINES. IF A HANG UP
01550	-0542	00	0	72016	RCHF ZERO	CONDITION OCCURS THE TAPE UNIT SELECT NEON ON DS WILL PROBABLY BE UP, AND THE RESET OF DS, RESET. THE CAUSE OF THE TROUBLE MAY BE THAT A ZERO CONTROL WORD DID NOT RESET THE TAPE UNIT TGR.
01551	-0760	00	0	06000	ETTF	
01552	0772	00	0	06200	REWF	
01553	0020	00	0	01555	TRA *+2	

01554	632346266060		BCD 1TCOF	TEST TRANS CHAN. F IN OPN.
01555	0766 00 0 06220	STFC	WTBF	
01556	0065 00 0 01561		TCOF *+3	CHAN. SHOULD BE IN OPN.
01557	0074 00 4 06267		TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
01560	-3 00000 0 01555		TXL STFC	
01561	-0542 00 0 71547		RCHF CNTL	NO INDS ON-WORD CNT. 1
01562	0065 00 0 01565		TCOF *+3	SHOULD TRANS.
01563	0074 00 4 06267		TSX ERROR-1,4	FAILED TO TRANS. IN OPN.
01564	-3 00000 0 01555		TXL STFC	
01565	0065 00 0 01565		TCOF *	
01566	0065 00 0 01570		TCOF *+2	SHOULD NOT TRANS.
01567	0020 00 0 01572		TRA *+3	OK
01570	0074 00 4 06267		TSX ERROR-1,4	TRANS. IN ERROR-TCOA
01571	-3 00000 0 01555		TXL STFC	
01572	0020 00 0 01574		TRA *+2	
01573	632345266060		BCD 1TCNF	
01574	-0065 00 0 01577	STFC1	TCNF *+3	SHOULD TRANS.
01575	0074 00 4 06267		TSX ERROR-1,4	FAILED TO TRANS.
01576	-3 00000 0 01574		TXL STFC1	
01577	0766 00 0 06220		WTBF	
01600	-0065 00 0 01602		TCNF *+2	SHOULD NOT TRANS.
01601	0020 00 0 01604		TRA *+3	OK
01602	0074 00 4 06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
01603	-3 00000 0 01574		TXL STFC1	
01604	-0542 00 0 71550		RCHF CNTL+1	NO TGRS. ON-WRD. CNT. 1
01605	-0065 00 0 01607		TCNF *+2	SHOULD NOT TRANS.
01606	0020 00 0 01611		TRA *+3	OK
01607	0074 00 4 06267		TSX ERROR-1,4	SHOULD NOT ENTER HERE
01610	-3 00000 0 01574		TXL STFC1	
01611	0065 00 0 01611		TCOF *	
01612	-0065 00 0 01615		TCNF *+3	SHOULD TRANS.
01613	0074 00 4 06267		TSX ERROR-1,4	
01614	-3 00000 0 01574		TXL STFC1	
01615	0074 00 4 06275		TSX OK,4	
01616	0020 00 0 01574		TRA STFC1	
01617	226363266060		BCD 1BTTF	
01620	0772 00 0 06200	STFC2	REWF	REWIND
01621	0764 00 0 06200		BSRF	BACKSPACE TO LD. PT.
01622	0772 00 0 06200		REWF	SHOULD ACT AS NOP
01623	0764 00 0 06200		BSRF	TRY TO BCKSP OVER LD. PT. BEGIN TAPE IND. SHOULD BE TURNED ON HERE
01624	0065 00 0 01624		TCOF *	

01625	0760	00	0	06000	BTTF	
01626	0020	00	0	01631	TRA *+3	OK-SHOULD BE ON
01627	0074	00	4	06267	TSX ERROR-1,4	SHLD NOT SKIP TO ENTER HERE
01630	-3	00000	0	01620	TXL STFC2	
01631	0760	00	0	06000	BTTF	
01632	0020	00	0	01634	TRA *+2	ERROR-BTT SHOULD BE OFF
01633	0020	00	0	01636	TRA *+3	OK-OFF
01634	0074	00	4	06267	TSX ERROR-1,4	SHOULD NOT ENTER HERE
01635	-3	00000	0	01620	TXL STFC2	
01636	0074	00	4	06275	TSX OK,4	OUT TO CHECK SWITCHES
01637	0020	00	0	01620	TRA STFC2	
01640	314663606060				BCD 1IOT	TEST I/O CHECK TGR.
01641	0766	00	0	06220	STTF3 WTBF	
01642	-0542	00	0	71547	RCHF CNTL	NO TGRS. ON-WRD. CNT. 1
01643	0065	00	0	01643	TCOF *	
01644	-0546	00	0	71550	LCHF CNTL+1	SHOULD TURN ON IOT
01645	0760	00	0	00005	IOT	
01646	0020	00	0	01651	TRA *+3	SHOULD ENTER HERE-OK
01647	0074	00	4	06267	TSX ERROR-1,4	ERROR-SHOULD NOT SKIP
01650	-3	00000	0	01641	TXL STTF3	
01651	0760	00	0	00005	IOT	
01652	0020	00	0	01654	TRA *+2	ERROR-TGR WAS NOT TURNED OFF BY PREVIOUS SEQUENCE
01653	0020	00	0	01656	TRA *+3	OK-TGR SHOULD BE OFF
01654	0074	00	4	06267	TSX ERROR-1,4	
01655	-3	00000	0	01641	TXL STTF3	
01656	0074	00	4	06275	TSX OK,4	OUT TO CHECK SWITCHES
01657	0020	00	0	01641	TRA STTF3	
01660	662526266060				BCD 1WEFF	TEST WEF BINARY AND BCD TO MAKE CERTAIN THEY BOTH WORK IN BCD MODE
01661	0766	00	0	06200	WTDF	
01662	-0542	00	0	71547	RCHF CNTL	NO TGRS. ON-WRD. CNT. 1
01663	0770	00	0	06200	WEFF	
01664	0766	00	0	06220	WTBF	
01665	-0542	00	0	71550	RCHF CNTL+1	NO. TGRS ON-WRD. CNT. 1
01666	0770	00	0	06220	WEFF 16	BINARY EOF
01667	0020	00	0	01671	TRA *+2	
01670	226251266060				BCD 1BSRF	
01671	0764	00	0	06220	STTF4 BSRF 16	
01672	0764	00	0	06200	BSRF	
01673	0762	00	0	06220	RTBF	
01674	-0542	00	0	71552	RCHF CNTLR+1	NO TGRS ON-WRD CNT 2
01675	0065	00	0	01675	TCOF *	
01676	0500	00	0	71570	CLA READ	WORD READ

01677	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN
01700	0340	00	0	71567	CAS ZEROS	
01701	0020	00	0	01703	TRA *+2	ERROR
01702	0020	00	0	01705	TRA *+3	OK
01703	0074	00	4	06266	TSX ERROR-2,4	
01704	0761	00	0	01671	NOP STTF4	DO NOT REPEAT
01705	0074	00	4	06344	TSX RDNCK,4	
01706	0020	00	0	01671	TRA STTF4	
01707	-0032	00	0	01712	TEFF *+3	
01710	0074	00	4	06267	TSX ERROR-1,4	
01711	-3	00000	0	01671	TXL STTF4	
01712	0020	00	0	01714	TRA *+2	
01713	226226266060				BCD 1BSFF	
01714	-0764	00	0	06200	STTF5 BSFF	BKSP OVER EOF
01715	-0764	00	0	06200	BSFF	BKSP OVER EOF AND 1 REC
01716	0764	00	0	06200	BSRF	BKSP OVER 1 REC
01717	0762	00	0	06200	RTDF	
01720	-0542	00	0	71552	RCHF CNTLR+1	NO TGRS ON-WRD CNT 2
01721	0065	00	0	01721	TCOF *	TO READ OEN WD AND BCD EOF
01722	0020	00	0	01724	TRA *+2	CONTINUE
01723	632526266060				BCD 1TEFF	TEST EOF TGR + INDICATOR
01724	-0032	00	0	01727	STTF6 TEFF *+3	SHOULD TRANS.
01725	0074	00	4	06267	TSX ERROR-1,4	
01726	-3	00000	4	01724	TXL STTF6,4	
01727	-0032	00	0	01731	TEFF *+2	SHOULD NOT TRANS.
01730	0020	00	0	01733	TRA *+3	OK
01731	0074	00	4	06267	TSX ERROR-1,4	
01732	-3	00000	4	01724	TXL STTF6,4	
01733	0762	00	0	06220	RTBF	
01734	-0542	00	0	71553	RCHF CNTLR+2	NO TGRS ON-WRD CNT 2
						TO READ ONE WD AND BIN EOF
01735	0065	00	0	01735	TCOF *	DELAY
01736	-0032	00	0	01741	TEFF *+3	
01737	0074	00	4	06267	TSX ERROR-1,4	
01740	-3	00000	4	01724	TXL STTF6,4	
01741	0500	00	0	71570	CLA READ	WORD READ
01742	0560	00	0	71566	LDQ ONES	WORD WRITTEN
01743	0340	00	0	71566	CAS ONES	
01744	0020	00	0	01746	TRA *+2	ERROR
01745	0020	00	0	01750	TRA *+3	OK
01746	0074	00	4	06266	TSX ERROR-2,4	
01747	0761	00	0	01714	NOP STTF5	
01750	0074	00	4	06344	TSX RDNCK,4	TEST RDNCY
01751	0020	00	0	01714	TRA STTF5	
01752	0500	00	0	71572	CLA READ+2	WORD READ
01753	0560	00	0	71567	LDQ ZEROS	WORD WRITTEN

01754	0340	00	0	71567	CAS ZEROS	
01755	0020	00	0	01757	TRA *+2	ERROR
01756	0020	00	0	01761	TRA *+3	OK
01757	0074	00	4	06266	TSX ERROR-2,4	
01760	0761	00	0	01714	NOP STTF5	
01761	0074	00	4	06275	TSX OK,4	OUT TO TEST SWITCHES
01762	0020	00	0	01671	TRA STTF4	REPEAT
01763	0761	00	0	00000	NOP	

01764	0760	00	0	00163	SWT 3	
01765	0020	00	0	01767	TRA *+2	
01766	0020	00	0	01772	TRA *+4	

\* PRINT --

\*\* 00000 INITIAL 755 AND 766-SECTION 2 COMPLETE

01767	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE
01770	0760	00	0	01363	SPRA 3	
01771	0540	00	0	77755	RCHA SECTN+1	



\*TEST PRINT AND PUNCH  
 \*WRITE ONE LINE AND READ ONE LINE-PRINTER  
 \*PUNCH ONE CARD-PUNCH

01772	-0534	00	2	71517	CRAZY	LXD SHAKE+2,2	L+30
01773	-0500	00	0	71733		CAL RANOS	INITIAL RAND. NO.
01774	0401	00	0	71733		ADM RANOS	
01775	0602	00	2	72510		SLW IRAN+24,2	FORM 30 RANDOM NUMBERS
01776	2	00001	2	01774		TIX CRAZY+2,2,1	
01777	0020	00	0	02001		TRA *+2	CONTINUE
02000	664764216060					BCD 1WPUA	PUNCH ONE BINARY RECORD
02001	0074	00	2	72322		TSX RELO,2	TO SHIFT PRINT IMAGE
02002	0500	00	0	72374		CLA COUNT	
02003	0100	00	0	02031		TZE QUIP-9	
02004	0402	00	0	72017		SUB ONE	
02005	0601	00	0	72374		STO COUNT	
02006	-0520	00	0	73010		NZT PUCHA	TEST FOR PUNCH-CHAN A.
02007	0020	00	0	02031		TRA PAPA+9	NO
02010	0766	00	0	01341	OSCAR	WPUA	
02011	0540	00	0	71554		RCHA CNTLW	TGRS S AND 2 ON-WRITE 9L-9R
02012	0544	00	0	71555		LCHA CNTLW+1	TGRS S AND 2 ON-WRITE 8L-8R
02013	0544	00	0	71556		LCHA CNTLW+2	TGR S ON-WRITE 7L-7R
02014	0060	00	0	02014		TCOA *	
02015	0640	00	0	71320		SCHA SAVE	STORE CONTENTS LR AND AR
02016	0020	00	0	02020		TRA *+2	
02017	622330216060					BCD 1SCHA	
02020	0500	00	0	71320	PAPA	CLA SAVE	RESULTS STORE CHAN.
02021	0560	00	0	71734		LDQ SCHA	CORRECT CONTENTS CHAN
02022	0340	00	0	71734		CAS SCHA	
02023	0020	00	0	02025		TRA *+2	ERROR
02024	0020	00	0	02027		TRA *+3	OK
02025	0074	00	4	06267		TSX ERROR-1,4	
02026	0761	00	0	02020		NOP PAPA	REPEAT SW 1 DOWN
02027	0020	00	0	02031		TRA *+2	
02030	664751216060					BCD 1WPRA	TEST WRITE PRINTER
02031	-0520	00	0	73007		NZT PRCHA	TEST FOR PRINTER-CHAN A.
02032	0020	00	0	02132		TRA OSCCR-2	NO
02033	0766	00	0	01361		WPRA	
02034	0540	00	0	71515		RCHA SHAKE	ALL TGRS ON-WRD. CNT. 2
02035	0544	00	0	71516		LCHA SHAKE+1	
02036	0060	00	0	02036		TCOA *	DELAY
02037	0640	00	0	71320		SCHA SAVE	

02040	0020 00 0 02042		TRA *+2	
02041	622330216060		BCD 1SCHA	
02042	0500 00 0 71320	QUIP	CLA SAVE	RESULTS STO. CHAN.
02043	0560 00 0 71544		LDQ SCH1	CORRECT CONTENTS CHAN.
02044	0340 00 0 71544		CAS SCH1	
02045	0020 00 0 02047		TRA *+2	ERROR
02046	0020 00 0 02051		TRA *+3	OK
02047	0074 00 4 06267		TSX ERROR-1,4	
02050	0761 00 0 02042		NOP QUIP	
02051	0074 00 4 06275		TSX OK,4	OUT TO TEST SWITCHES
02052	0020 00 0 02006		TRA OSCAR-2	REPEAT
02053	0761 00 0 00000		NOP	
02054	0074 00 2 72327		TSX SHIFT,2	
02055	0020 00 0 02057		TRA *+2	
02056	514751216060		BCD 1RPRA	TEST READ PRINTER
02057	0762 00 0 01361	ROMEO	RPRA	
02060	0540 00 0 71522		RCHA SHAKE+5	ALL TGRS ON-WRD CNT 16
02061	0544 00 0 71524		LCHA SHAKE+7	TGR 2 ON-WRD CNT 2
02062	0544 00 0 71532		LCHA SHAKE+13	S TGR ON-WRD CNT 2
02063	0544 00 0 71534		LCHA SCH1-8	S+1 TGRS ON-WRD CNT 2
02064	0544 00 0 71537		LCHA SCH1-5	S TGR ON-WRD CNT 14
02065	0060 00 0 02065		TCOA *	WAIT FOR CHAN TO END OPN
02066	0020 00 0 02070		TRA *+2	
02067	622330216060		BCD 1SCHA	
02070	0640 00 0 71320	SIERA	SCHA SAVE	STO. CHANNEL A
02071	0500 00 0 71320		CLA SAVE	RESULT SCHA
02072	0560 00 0 71545		LDQ SCH2	CORRECT CONTENTS
02073	0340 00 0 71545		CAS SCH2	
02074	0020 00 0 02076		TRA *+2	ERROR
02075	0020 00 0 02100		TRA *+3	OK
02076	0074 00 4 06267		TSX ERROR-1,4	
02077	0761 00 0 02070		NOP SIERA	
02100	0020 00 0 02102		TRA *+2	CONTINUE
02101	314663606060		BCD 1IOT	TEST I/O TGR
02102	0760 00 0 00005		IOT	
02103	0020 00 0 02105		TRA *+2	
02104	0020 00 0 02107		TRA *+3	OK-SHOULD BE OFF
02105	0074 00 4 06267		TSX ERROR-1,4	ERROR
02106	-3 00000 4 02102		TXL *-4,4,0	
02107	0074 00 2 10475		TSX ECHOS,2	
02110	0774 00 2 00000		AXT 0,2	
02111	0534 00 1 72015		LXA TWTWO,1	L+24
02112	0754 00 1 00000		PXA 0,1	
02113	0400 00 0 72017		ADD ONE	L+1
02114	0621 00 0 06342		STA WDNO	SET WDNO CONSTANT
02115	0500 00 0 72017		CLA ONE	L+1

02116	0621 00 0 06343		STA RECNO	SET REC. NO. CONSTANT
02117	0500 00 1 72011	TANGO	CLA ECHO+18,1	WORD READ
02120	0560 00 1 71507		LDQ WRIT2+18,1	WORD WRITTEN
02121	0340 00 1 71507		CAS WRIT2+18,1	
02122	0020 00 0 02124		TRA *+2	ERROR
02123	0020 00 0 02126		TRA *+3	OK
02124	0074 00 4 06266		TSX ERROR-2,4	
02125	0761 00 0 02057		NOP ROMEO	
02126	2 00001 1 02117		TIX TANGO,1,1	CHECK ALL WORDS
02127	0074 00 4 06275		TSX OK,4	
02130	0020 00 0 02057		TRA ROMEO	REPEAT SW 1 DOWN
02131	664764236060		BCD 1WPUC	
02132	-0520 00 0 73014		NZT PUCHC	TEST FOR PUNCH-CHAN C.
02133	0020 00 0 02155		TRA PAPC+9	NO
02134	0766 00 0 03341	OSCCR	WPUC	
02135	0541 00 0 71554		RCHC CNTLW	TGRS S AND 2 ON-WRITE 9L-9R
02136	0545 00 0 71555		LCHC CNTLW+1	TGRS S AND 2 ON-WRITE 8L-8R
02137	0545 00 0 71556		LCHC CNTLW+2	TGR S ON-WRITE 7L-7R
02140	0062 00 0 02140		TCOC *	
02141	0641 00 0 71320		SCHC SAVE	STORE CONTENTS LR AND AR
02142	0020 00 0 02144		TRA *+2	
02143	622330236060		BCD 1SCHC	
02144	0500 00 0 71320	PAPC	CLA SAVE	RESULTS STORE CHAN.
02145	0560 00 0 71734		LDQ SCHA	CORRECT CONTENTS CHAN
02146	0340 00 0 71734		CAS SCHA	
02147	0020 00 0 02151		TRA *+2	ERROR
02150	0020 00 0 02153		TRA *+3	OK
02151	0074 00 4 06267		TSX ERROR-1,4	
02152	0761 00 0 02144		NOP PAPC	
02153	0020 00 0 02155		TRA *+2	
02154	664751236060		BCD 1WPRC	WRITE PRINTER-CHAN C
02155	-0520 00 0 73013		NZT PRCHC	TEST FOR PRINTER-CHAN C.
02156	0020 00 0 02253		TRA OSCER-2	NO-GO TO TEST FOR CHAN.
02157	0766 00 0 03361		WPRC	
02160	0541 00 0 71515		RCHC SHAKE	ALL TGRS ON-WRD. CNT. 2
02161	0545 00 0 71516		LCHC SHAKE+1	
02162	0062 00 0 02162		TCOC *	DELAY
02163	0641 00 0 71320		SCHC SAVE	
02164	0020 00 0 02166		TRA *+2	
02165	622330236060		BCD 1SCHC	
02166	0500 00 0 71320	QUCP	CLA SAVE	RESULTS STO. CHAN.

02167	0560	00	0	71544		LDQ SCH1	CORRECT CONTENTS CHAN.
02170	0340	00	0	71544		CAS SCH1	
02171	0020	00	0	02173		TRA *+2	ERROR
02172	0020	00	0	02175		TRA *+3	OK
02173	0074	00	4	06267		TSX ERROR-1,4	
02174	0761	00	0	02166		NOP QUCP	
02175	0074	00	4	06275		TSX OK,4	
02176	0020	00	0	02157		TRA QUCP-7	
02177	514751236060					BCD 1RPRC	TEST READ PRINTER
02200	0762	00	0	03361	ROMECC	RPRC	
02201	0541	00	0	71522		RCHC SHAKE+5	ALL TGRS ON-WRD CNT 16
02202	0545	00	0	71524		LCHC SHAKE+7	TGR 2 ON-WRD CNT 2
02203	0545	00	0	71532		LCHC SHAKE+13	S TGR ON-WRD CNT 2
02204	0545	00	0	71534		LCHC SCH1-8	S+1 TGRS ON-WRD CNT 2
02205	0545	00	0	71537		LCHC SCH1-5	S TGR ON-WRD CNT 14
02206	0062	00	0	02206		TCOC *	WAIT FOR CHAN TO END OPN
02207	0020	00	0	02211		TRA *+2	
02210	622330236060					BCD 1SCHC	
02211	0641	00	0	71320	SIERCC	SCHC SAVE	STO CONTENTS CHAN
02212	0500	00	0	71320		CLA SAVE	RESULT SCH OPN.
02213	0560	00	0	71545		LDQ SCH2	CORRECT CONTENTS
02214	0340	00	0	71545		CAS SCH2	
02215	0020	00	0	02217		TRA *+2	ERROR
02216	0020	00	0	02221		TRA *+3	OK
02217	0074	00	4	06267		TSX ERROR-1,4	
02220	0761	00	0	02211		NOP SIERC	
02221	0020	00	0	02223		TRA *+2	
02222	314663606060					BCD 1IOT	TEST I/O TGR
02223	0760	00	0	00005		IOT	
02224	0020	00	0	02226		TRA *+2	
02225	0020	00	0	02230		TRA *+3	OK-SHOULD BE OFF
02226	0074	00	4	06267		TSX ERROR-1,4	ERROR
02227	-3 00000	4	0	02223		TXL *-4,4,0	
02230	0074	00	2	10475		TSX ECHOS,2	
02231	0774	00	2	00000		AXT 0,2	
02232	0534	00	1	72015		LXA TWTWO,1	L+24
02233	0754	00	1	00000		PXA 0,1	
02234	0400	00	0	72017		ADD ONE	L+1
02235	0621	00	0	06342		STA WDNO	SET WDNO CONSTANT
02236	0500	00	0	72017		CLA ONE	L+1
02237	0621	00	0	06343		STA RECNO	SET REC. NO. CONSTANT
02240	0500	00	1	72011	TCNGO	CLA ECHO+18,1	WORD READ
02241	0560	00	1	71507		LDQ WRIT2+18,1	WORD WRITTEN
02242	0340	00	1	71507		CAS WRIT2+18,1	
02243	0020	00	0	02245		TRA *+2	ERROR
02244	0020	00	0	02247		TRA *+3	OK
02245	0074	00	4	06266		TSX ERROR-2,4	
02246	0761	00	0	02200		NOP ROMECC	

02247	2	00001	1	02240		TIX TCNGO,1,1	CHECK ALL WORDS
02250	0074	00	4	06275		TSX OK,4	
02251	0020	00	0	02200		TRA ROMEC	REPEAT SW 1 DOWN
02252	664764256060					BCD 1WPUE	
02253	-0520	00	0	73020		NZT PUCHE	TEST FOR PUNCH-CHAN E.
02254	0020	00	0	02276		TRA PEPE+9	NO
02255	0766	00	0	05341	OSCER	WPUE	
02256	0542	00	0	71554		RCHE CNTLW	TGRS S AND 2 ON-WRITE 9L-9R
02257	0546	00	0	71555		LCHE CNTLW+1	TGRS S AND 2 ON-WRITE 8L-8R
02260	0546	00	0	71556		LCHE CNTLW+2	TGR S ON-WRITE 7L-7R
02261	0064	00	0	02261		TCOE *	
02262	0642	00	0	71320		SCHE SAVE	STORE CONTENTS LR AND AR
02263	0020	00	0	02265		TRA *+2	
02264	622330256060					BCD 1SCHE	
02265	0500	00	0	71320	PEPE	CLA SAVE	RESULTS STORE CHAN.
02266	0560	00	0	71734		LDQ SCHA	CORRECT CONTENTS CHAN
02267	0340	00	0	71734		CAS SCHA	
02270	0020	00	0	02272		TRA *+2	ERROR
02271	0020	00	0	02274		TRA *+3	OK
02272	0074	00	4	06267		TSX ERROR-1,4	
02273	0761	00	0	02265		NOP PEPE	
02274	0020	00	0	02276		TRA *+2	
02275	664751256060					BCD 1WPRE	WRITE PRINTER-CHAN C
02276	-0520	00	0	73017		NZT PRCHE	TEST FOR PRINTER-CHAN C.
02277	0020	00	0	02374		TRA TENGE+11	NO-GO TO TEST FOR CHAN.
02300	0766	00	0	05361		WPRE	
02301	0542	00	0	71515		RCHE SHAKE	ALL TGRS ON-WRD. CNT. 2
02302	0546	00	0	71516		LCHE SHAKE+1	
02303	0064	00	0	02303		TCOE *	DELAY
02304	0642	00	0	71320		SCHE SAVE	
02305	0020	00	0	02307		TRA *+2	
02306	622330256060					BCD 1SCHE	
02307	0500	00	0	71320	QUEP	CLA SAVE	RESULTS STO. CHAN.
02310	0560	00	0	71544		LDQ SCH1	CORRECT CONTENTS CHAN.
02311	0340	00	0	71544		CAS SCH1	
02312	0020	00	0	02314		TRA *+2	ERROR
02313	0020	00	0	02316		TRA *+3	OK
02314	0074	00	4	06267		TSX ERROR-1,4	
02315	0761	00	0	02307		NOP QUEP	
02316	0074	00	4	06275		TSX OK,4	
02317	0020	00	0	02300		TRA QUEP-7	
02320	514751256060					BCD 1RPRE	TEST READ PRINTER

02321	0762	00	0	05361	ROME	RPRE		
02322	0542	00	0	71522		RCHE SHAKE+5	ALL TGRS ON-WRD CNT 16	
02323	0546	00	0	71524		LCHE SHAKE+7	TGR 2 ON-WRD CNT 2	
02324	0546	00	0	71532		LCHE SHAKE+13	S TGR ON-WRD CNT 2	
02325	0546	00	0	71534		LCHE SCH1-8	S+1 TGRS ON-WRD CNT 2	
02326	0546	00	0	71537		LCHE SCH1-5	S TGR ON-WRD CNT 14	
02327	0064	00	0	02327		TCOE *	WAIT FOR CHAN TO END OPN	
02330	0020	00	0	02332		TRA *+2		
02331 622330256060						BCD 1SCHE		
02332	0642	00	0	71320	SIERE	SCHE SAVE	STO CONTENTS CHAN	
02333	0500	00	0	71320		CLA SAVE	RESULT SCH OPN.	
02334	0560	00	0	71545		LDQ SCH2	CORRECT CONTENTS	
02335	0340	00	0	71545		CAS SCH2		
02336	0020	00	0	02340		TRA *+2	ERROR	
02337	0020	00	0	02342		TRA *+3	OK	
02340	0074	00	4	06267		TSX ERROR-1,4		
02341	0761	00	0	02332		NOP SIERE		
02342	0020	00	0	02344		TRA *+2		
02343 314663606060						BCD 1IOT	TEST I/O TGR	
02344	0760	00	0	00005		IOT		
02345	0020	00	0	02347		TRA *+2		
02346	0020	00	0	02351		TRA *+3	OK-SHOULD BE OFF	
02347	0074	00	4	06267		TSX ERROR-1,4	ERROR	
02350	-3	00000	4	02344		TXL *-4,4,0		
02351	0074	00	2	10475		TSX ECHOS,2		
02352	0774	00	2	00000		AXT 0,2		
02353	0534	00	1	72015		LXA TWTWO,1	L+24	
02354	0754	00	1	00000		PXA 0,1		
02355	0400	00	0	72017		ADD ONE	L+1	
02356	0621	00	0	06342		STA WDNO	SET WDNO CONSTANT	
02357	0500	00	0	72017		CLA ONE	L+1	
02360	0621	00	0	06343		STA RECNO	SET REC. NO. CONSTANT	
02361 0500 00 1 72011					TENGE	CLA ECHO+18,1	WORD READ	
02362	0560	00	1	71507		LDQ WRIT2+18,1	WORD WRITTEN	
02363	0340	00	1	71507		CAS WRIT2+18,1		
02364	0020	00	0	02366		TRA *+2	ERROR	
02365	0020	00	0	02370		TRA *+3	OK	
02366	0074	00	4	06266		TSX ERROR-2,4		
02367	0761	00	0	02321		NOP ROME		
02370	2	00001	1	02361		TIX TENGE,1,1	CHECK ALL WORDS	
02371	0074	00	4	06275		TSX OK,4		
02372	0020	00	0	02321		TRA ROME	REPEAT SW 1 DOWN	
02373	0761	00	0	00000		NOP		
02374 0760 00 0 00163						SWT 3		
02375	0020	00	0	02377		TRA *+2		
02376	0020	00	0	02402		TRA *+4		

\*\* 00000 INITIAL CARD MACHINES-SECTION 3 COMPLETE

02377	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE
02400	0760	00	0	01363	SPRA 3	
02401	0540	00	0	77756	RCHA SECTN+2	

02402	0441	00	0	05531		LDI CTRL1	DRUMS SELECTED
02403	0600	00	0	72650		STZ Z20	RESET COUNT
02404	0774	00	1	00020		AXT 16,1	L +20
02405	0634	00	1	72650		SXA Z20,1	
02406	0634	00	1	72652		SXA DC,1	SET COUNT
02407	0600	00	1	72630		STZ DC1+16,1	CLEAR DRUM
02410	2	00001	1	02407		TIX *-1,1,1	CONTROL IMAGE
02411	0774	00	3	00000		AXT 0,3	
02412	-0056	00		200000	HUNT	LNT 200000	TEST FOR INDICATORS
02413	0020	00	0	02417		TRA *+4	IF NO BIT GO TO DECR. ADDR.
02414	0500	00	1	72630		CLA K301,1	CORRECT DRUM SELECTED
02415	0601	00	2	72610		STO DC1,2	PLACE IN CONTROL IMAGE
02416	1	77777	2	02417		TXI *+1,2,-1	DECREMENT CONTROL IMAGE
02417	1	77777	1	02420		TXI *+1,1,-1	DECREMENT CORRECT DRUM
02420	0500	00	0	72650		CLA Z20	L+20
02421	0402	00	0	72017		SUB ONE	L+1 - FOR COUNT OF SHIFTS
02422	0601	00	0	72650		STO Z20	SAVE COUNT
02423	0100	00	0	02431		TZE DAD	ALL DRUMS HAVE BEEN RECOGNIZED
02424	0500	00	0	02412		CLA HUNT	L LNT INSTRUCTION
02425	0771	00	0	00001		ARS 1	SHIFT TO TEST NEXT IND.
02426	0621	00	0	02412		STA HUNT	STORE NEW ADDR
02427	0625	00	0	02412		STT HUNT	STORE NEW TAG
02430	0020	00	0	02412		TRA HUNT	
02431	0500	00	0	72651	DAD	CLA RESTR	L LNT INSTR
02432	0601	00	0	02412		STO HUNT	RESTORE HUNT
02433	0534	00	1	72652		LXA DC,1	
02434	0500	00	1	72630		CLA DC1+16,1	
02435	0621	00	0	72653		STA DRUM	SAVE DRUM SELECTED
02436	0100	00	0	03625		TZE IOSEL-18	TEST FOR CRT
02437	2	00001	1	02440		TIX *+1,1,1	ADJUST FOR NECT DRUM
02440	0634	00	1	72652		SXA DC,1	SAVE COUNT

\*STORE SELECTED DRUM ADDRESS IN ALL RDS AND WRS INSTRUCTIONS

02441	0500	00	0	72653		CLA DRUM	
02442	0621	00	0	02511		STA LDAA	
02443	0621	00	0	02532		STA LDAB-2	
02444	0621	00	0	02554		STA 1LDA	
02445	0621	00	0	02614		STA LDA5+2	
02446	0621	00	0	02645		STA LDA7+4	
02447	0621	00	0	03142		STA R	
02450	0621	00	0	03164		STA R3	
02451	0621	00	0	03200		STA R4	
02452	0621	00	0	03335		STA R10	
02453	0621	00	0	03366		STA R13	
02454	0621	00	0	03410		STA R14	
02455	0621	00	0	03446		STA BEGEN+4	
02456	0621	00	0	03463		STA BUG	
02457	0621	00	0	03514		STA AGAIN+1	



```

02460 0621 00 0 03523      STA AGAIN+8
02461 0621 00 0 03543      STA INDEX+10
02462 0621 00 0 03551      STA BUGS
02463 0621 00 0 03574      STA BUGS+19
02464 0621 00 0 03577      STA BUGS+22
02465 0621 00 0 03651      STA IOSEL+2
02466 0621 00 0 03664      STA IOSEL+13
02467 0621 00 0 03711      STA RDWTB
02470 0621 00 0 03677      STA RDWTB-10
  
```

\*STORE SELECTED ADDRESS IN DUMMY BCD INSTRUCTIONS

```

02471 0500 00 0 72653      CLA DRUM          L ADDRESS OF SELECTED DRUM
02472 0402 00 0 72654      SUB K300         L 300
02473 0734 00 1 00000      PAX 0,1
02474 -0500 00 1 72675      CAL TBLE2+16,1
02475 0621 00 0 02510      STA LDAA-1
02476 0621 00 0 02531      STA LDAB-3
02477 0621 00 0 02553      STA 1LDA-1
02500 0621 00 0 02611      STA LDA5-1
02501 0621 00 0 03141      STA R-1
02502 0621 00 0 03177      STA R4-1
02503 0621 00 0 03334      STA R10-1
02504 0621 00 0 03415      STA R15-1
02505 0500 00 0 02511      CLA LDAA         SET RANDOM NUMBER
02506 0621 00 0 73352      STA RN+63       CONSTANT
02507 0020 00 0 02511      TRA *+2
  
```

\* ENTER LDA TEST \*

```

02510 662451606060          BCD 1WDR
02511 0766 00 0 00000      LDAA WRS
02512 0534 00 1 72675      LXA K4000,1     L 4000
02513 0500 00 0 72016      CLA ZERO        L 0
02514 0601 00 1 77753      STO X,1         LOAD STORAGE WITH INFOR
02515 0400 00 0 72713      ADD K6          L+2000001
02516 2 00001 1 02514      TIX LDAA+3,1,1
  
```

\* WRITE DRUM ADDRESSES IN THE ADDRESS ON THE DRUM  
 \* THE DECREMENT CONTAINS THE POCKET AND THE ADDRESS THE ADDRESS

```

02517 0534 00 1 72675      LXA K4000,1     L+4000
02520 0700 00 1 77753      LDA1 CPY X,1
02521 2 00001 1 02520      TIX LDA1,1,1   LOAD DRUM
02522 0074 00 4 06275      TSX OK,4
02523 0020 00 0 02511      TRA LDAA       LOOP IN WRITE ROUTINE
  
```

\* CLEAR STORAGE

```

02524 0761 00 0 00000      NOP
02525 0534 00 1 72675      LXA K4000,1     L 4000
02526 0600 00 1 77753      LDA1A STZ X,1
02527 2 00001 1 02526      TIX LDA1A,1,1
02530 0020 00 0 02532      TRA LDAB-2
  
```

\* READ ENTIRE DRUM INTO STORAGE

02531 512451606060 BCD 1RDR  
 02532 0762 00 0 00000 RDS  
 02533 0534 00 1 72675 LX A K4000,1 L 4000  
 02534 0700 00 1 77753 LDAB CPY X,1  
 02535 2 00001 1 02534 TIX LDAB,1,1

\* COMPARE THE WORD READ TO THE WORD WRITTEN

02536 0534 00 1 72675 LX A K4000,1 L 4000  
 02537 0500 00 0 72016 CLA ZERO L 0  
 02540 0340 00 1 77753 LDAC CAS X,1  
 02541 0020 00 0 02543 TRA LDAC+3 ERROR  
 02542 0020 00 0 02550 TRA LDAD OK  
 02543 0560 00 1 77753 LDQ X,1 ERROR WORD  
 02544 0131 00 0 00000 XCA ERROR WORD TO ACC  
 CORRECT WORD TO MQ  
 02545 0074 00 4 06266 TSX ERROR-2,4  
 02546 0020 00 0 02532 TRA LDAB-2  
 02547 0131 00 0 00000 XCA RESTORE ACC AND MQ  
 02550 0400 00 0 72713 LDAD ADD K6 L+2000001  
 02551 2 00001 1 02540 TIX LDAC,1,1  
 02552 0020 00 0 02554 TRA \*+2

\*\*\*\*\* TEST LDA TRANSMISSION TO MQ \*\*\*\*\*

02553 432421606060 BCD 1LDA  
 02554 0762 00 0 00000 1LDA RDS  
 02555 0460 00 0 72764 LDA K3777 L 3777  
 02556 -0600 00 0 72677 STQ LDA10  
 02557 0700 00 0 77752 CPY X-1 IF I/O COMES UP  
 HERE,CHECK THE DRUM COUNTER  
 ON PAGE 7.02.01

02560 0500 00 0 72677 CLA LDA10  
 02561 0402 00 0 72700 SUB K7776 L 7775  
 02562 0100 00 0 02564 TZE 1LDA+8  
 02563 0074 00 4 06270 TSX ERROR,4  
 02564 0074 00 4 06275 TSX OK,4  
 02565 0020 00 0 02554 TRA 1LDA

02566 314663606060 BCD 1IOT  
 02567 0760 00 0 00005 IOT  
 02570 0020 00 0 02572 TRA \*+2 ERROR-SHBE OFF  
 02571 0020 00 0 02574 TRA \*+3  
 02572 0074 00 4 06267 TSX ERROR-1,4  
 02573 -3 00000 4 02567 TXL \*-4,4

\* ADJUST CONSTANTS FOR NON-SEQUENTIAL LDA TEST

02574 0500 00 0 72704 NSEQ CLA K+3 L DEC 200, ADR 20  
 02575 0601 00 0 72701 STO K  
 02576 0500 00 0 72705 CLA K+4 L DEC 40, ADR 20

02577	0601	00	0	72702	STO	K+1	
02600	0500	00	0	72706	CLA	K+5	L DEC 10036, ADR 4017
02601	0601	00	0	72703	STO	K+2	
02602	0500	00	0	72704	CLA	K+3	L DEC 200, ADR 20
02603	0767	00	0	00022	ALS	18	
02604	0622	00	0	02654	STD	LDA8-5	
02605	0500	00	0	72707	CLA	K+6	L DEC 3377, ADR 3757
02606	0767	00	0	00022	ALS	18	
02607	0622	00	0	02657	STD	LDA8-2	
02610	0020	00	0	02612	TRA	LDA5	

\* LOCATE ALL DRUM ADDRESSES IN THE DRUM COUNTER SEQUENCE AND CHECK

02611	432421606060				BCD	1LDA	
02612	0500	00	0	72016	LDA5	CLA	ZERO L 0
02613	0601	00	0	72710		STO	CSC CLEAR CHECK SUM COUNTER
02614	0762	00	0	00000		RDS	
02615	0500	00	0	72713		CLA	K6 L +2000001
02616	0621	00	0	72677		STA	LDA10 SET LDA COUNTER TO ONE
02617	0534	00	1	72716		LXA	K6+3,1 L+37877 ADJUST XRA FOR PRINT PROGRAM
02620	0534	00	2	72701		LXA	K,2
02621	-0534	00	4	72701		LXD	K,4
02622	0460	00	0	72677	LDA6	LDA	LDA10
02623	0700	00	0	72711		CPY	T2 TEMP STORAGE
02624	0340	00	0	72711		CAS	T2
02625	0020	00	0	02627		TRA	LDA6+5 ERROR
02626	0020	00	0	02641		TRA	LDA7 OK
02627	0560	00	0	72711		LDQ	T2 WORD READ IN MQ
02630	0131	00	0	00000		XCA	CORRECT WORD TO MQ ERROR WORD TO ACC
02631	-0634	00	4	72712		SXD	T1,4 SAVE INDEX COUNT
02632	0634	00	2	72712		SXA	T1,2 SAVE XRB
02633	0774	00	2	00000		AXT	0,2 CLEAR XRB
02634	0074	00	4	06266		TSX	ERROR-2,4 MQ CONTAINS POCKET NUMBER IN ITS DEC, AND DRUM ADDRESS IN ITS ADDRESS
02635	0020	00	0	02612		TRA	LDA5
02636	0131	00	0	00000		XCA	RESTORE ACC AND MQ
02637	0534	00	2	72712		LXA	T1,2 RESTORE XRB
02640	-0534	00	4	72712		LXD	T1,4 RESTORE INDEX COUNT
02641	0601	00	0	72712	LDA7	STO	T1 SAVE ACCUMULATOR
02642	0500	00	0	72711		CLA	T2 WORD READ
02643	0361	00	0	72710		ACL	CSC
02644	0601	00	0	72710		STO	CSC INCREASE CHECK SUM COUNTER
02645	0762	00	0	00000		RDS	
02646	0500	00	0	72712		CLA	T1 RESTORE ACCUMULATOR
02647	0400	00	0	72702		ADD	K+1 INCREASE THE PKT AND ADR
02650	0340	00	0	72703		CAS	K+2

\* THE APPROACH OF ADDRESS ZERO

```

02651 0000 00 0 02653      HTR LDA7+10  SHOULD NEVER ENTER HERE
02652 0020 00 0 02661      TRA LDA8      THE NEXT ADDRESS IS ZERO
02653 0621 00 0 72677      STA LDA10
02654 2 00000 1 02655      TIX LDA7+12,1,0 ADJUST XRA FOR PRINT
02655 2 00001 4 02622      TIX LDA6,4,1

02656 0402 00 0 72716      SUB K6+3      L+7776003777-INCREAESE
                                SECTOR BY A COUNT OF ONE
02657 1 00000 1 02660      TXI LDA8-1,1,0 ADJUST FOR PRINT PROG
02660 0020 00 0 02663      TRA LDA8+2

02661 0500 00 0 72016      LDA8  CLA ZERO      L 0
02662 0534 00 1 72675      LXK K4000,1   ADJUST FOR PRINT PROGRAM
02663 0621 00 0 72677      STA LDA10
02664 2 00001 2 02621      TIX LDA6-1,2,1

02665 0700 00 0 77752      CPY X-1      DRUM DISCONNECT
02666 0500 00 0 72717      CLA CS      GENERATE CHECK SUM
02667 0340 00 0 72710      CAS CSC
02670 0020 00 0 02672      TRA LDA8+9   ERROR IN CHECK SUM
02671 0020 00 0 02677      TRA LDA9     CHECK SUM
02672 0774 00 2 00000      AXT 0,2     CLEAR XRB
02673 0560 00 0 72710      LDQ CSC     CORRECT CHECK SUM
02674 0131 00 0 00000      XCA
02675 0074 00 4 06266      TSX ERROR-2,4 ERROR IN CHECK SUM
02676 0020 00 0 02612      TRA LDA5
02677 0074 00 4 06275      LDA9  TSX OK,4
02700 0020 00 0 02612      TRA LDA5
02701 0761 00 0 00000      NOP
  
```

```

*****
*
* THIS IS A RIPPLE LDA SWITCHING PHYSICAL DRUMS TEST *
*
*****
  
```

\* SELECT CORRECT FRAME

```

02702 0500 00 0 72653      DAS  CLA DRUM      L DRUM ADDRESS
02703 0402 00 0 72640      SUB K311      L 311
02704 -0120 00 0 02747      TMI DL01     DRUM 1 OR 2

02705 0402 00 0 72723      DHI  SUB K4      L 4
02706 -0120 00 0 02727      TMI DH1     DRUM FRAME 3

02707 0500 00 0 72644      DH2  CLA K315     L 315 F4
02710 0621 00 0 72722      STA DA      SAVE
02711 0621 00 0 03012      STA DST     L WRS INST
02712 0500 00 0 72724      CLA D13B    L 0103
02713 -0501 00 0 72734      ORA LDA
02714 0602 00 0 03070      SLW LCP1-1

02715 0500 00 0 72725      CLA D14B    L 0104
  
```

02716	-0501	00	0	72734		ORA LDA	
02717	0602	00	0	03102		SLW LCP2-1	
02720	0500	00	0	72726		CLA D15B	L 0105
02721	-0501	00	0	72734		ORA LDA	
02722	0602	00	0	03114		SLW LCP3-1	
02723	0500	00	0	72727		CLA D16B	L 0106
02724	-0501	00	0	72734		ORA LDA	
02725	0602	00	0	03126		SLW LCP4-1	
02726	0020	00	0	03011		TRA DST-1	START
02727	0500	00	0	72640	DH1	CLA K311	L 311 F3
02730	0621	00	0	72722		STA DA	SAVE
02731	0621	00	0	03012		STA DST	L WRS INST
02732	0500	00	0	72730		CLA D9B	L 0011
02733	-0501	00	0	72734		ORA LDA	
02734	0602	00	0	03070		SLW LCP1-1	
02735	0500	00	0	72731		CLA D10B	L 0100
02736	-0501	00	0	72734		ORA LDA	
02737	0602	00	0	03102		SLW LCP2-1	
02740	0500	00	0	72732		CLA D11B	L 0101
02741	-0501	00	0	72734		ORA LDA	
02742	0602	00	0	03114		SLW LCP3-1	
02743	0500	00	0	72733		CLA D12B	L 0102
02744	-0501	00	0	72734		ORA LDA	
02745	0602	00	0	03126		SLW LCP4-1	
02746	0020	00	0	03011		TRA DST-1	START
02747	0500	00	0	72653	DL01	CLA DRUM	
02750	0402	00	0	72634		SUB K305	L 305
02751	-0120	00	0	02772		TMI DL1	DRUM FRAME 1
02752	0500	00	0	72634	DL02	CLA K305	L 305 F2
02753	0621	00	0	72722		STA DA	SAVE
02754	0621	00	0	03012		STA DST	L WRS INST
02755	0500	00	0	72735		CLA D5B	L 0005
02756	-0501	00	0	72734		ORA LDA	
02757	0602	00	0	03070		SLW LCP1-1	
02760	0500	00	0	72736		CLA D6B	L 0006
02761	-0501	00	0	72734		ORA LDA	
02762	0602	00	0	03102		SLW LCP2-1	
02763	0500	00	0	72737		CLA D7B	L 0007
02764	-0501	00	0	72734		ORA LDA	
02765	0602	00	0	03114		SLW LCP3-1	
02766	0500	00	0	72740		CLA D8B	L 0010

02767	-0501	00	0	72734		ORA	LDA	
02770	0602	00	0	03126		SLW	LCP4-1	
02771	0020	00	0	03011		TRA	DST-1	START
02772	0500	00	0	72630	DL1	CLA	K301	L 301 F1
02773	0621	00	0	72722		STA	DA	SAVE
02774	0621	00	0	03012		STA	DST	L WRS INST
02775	0500	00	0	72741		CLA	D1B	L 0001
02776	-0501	00	0	72734		ORA	LDA	
02777	0602	00	0	03070		SLW	LCP1-1	
03000	0500	00	0	72742		CLA	D2B	L 0002
03001	-0501	00	0	72734		ORA	LDA	
03002	0602	00	0	03102		SLW	LCP2-1	
03003	0500	00	0	72743		CLA	D3B	L 0003
03004	-0501	00	0	72734		ORA	LDA	
03005	0602	00	0	03114		SLW	LCP3-1	
03006	0500	00	0	72744		CLA	D4B	L 0004
03007	-0501	00	0	72734		ORA	LDA	
03010	0602	00	0	03126		SLW	LCP4-1	

\* LOAD ALL DRUMS COMPLETE WITH 25 PATTERN

03011	0534	00	4	72723		LXA	K4,4	L 4
03012	0766	00	0	00000	DST	WRS		
03013	0534	00	1	72675		LXA	K4000,1	L 4000
03014	0700	00	0	72745		CPY	TEST3	L 25 PATTERN
03015	2 00001	1		03014		TIX	DST+2,1,1	
03016	0500	00	0	03012		CLA	DST	
03017	0400	00	0	72017		ADD	ONE	L ONE
03020	0621	00	0	03012		STA	DST	
03021	2 00001	4		03012		TIX	DST,4,1	LOAD ALL DRUMS

\* ENTER LDA RIPPLE SWITCHING PHYSICAL DRUM

03022	0500	00	0	72722	DST0	CLA	DA	
03023	0621	00	0	03012		STA	DST	RESTORE
03024	0621	00	0	03037		STA	LWD1	DRUM ONE OF SELECTED FR
03025	0621	00	0	03053		STA	LRD1	
03026	0400	00	0	72017		ADD	ONE	L ONE
03027	0621	00	0	03045		STA	LWD2	DRUM TWO OF SELECTED FR
03030	0621	00	0	03061		STA	LRD2	
03031	0400	00	0	72017		ADD	ONE	L ONE
03032	0621	00	0	03042		STA	LWD3	
03033	0621	00	0	03056		STA	LRD3	DRUM THREE OF SELECTED FR
03034	0400	00	0	72017		ADD	ONE	L ONE
03035	0621	00	0	03050		STA	LWD4	DRUM FOUR OF SELECTED FR
03036	0621	00	0	03064		STA	LRD4	

\* WRITE SINGLE WORDS ON ALL DRUMSWITH ASCENDING LDA ADDRESS

03037	0766	00	0	00000	LWD1	WRS		
03040	0460	00	0	72746		LDA D02	L	4000002
03041	0700	00	0	72746		CPY D02		
03042	0766	00	0	00000	LWD3	WRS		
03043	0460	00	0	72747		LDA D52	L	124000252
03044	0700	00	0	72747		CPY D52		
03045	0766	00	0	00000	LWD2	WRS		
03046	0460	00	0	72750		LDA D252	L	524000252
03047	0700	00	0	72750		CPY D252		
03050	0766	00	0	00000	LWD4	WRS		
03051	0460	00	0	72751		LDA D1252	L	2524001252
03052	0700	00	0	72751		CPY D1252		

\* READ SINGLE WORDS FROM LDA S JUST WRITTEN

03053	0762	00	0	00000	LRD1	RDS		
03054	0460	00	0	72746		LDA D02	L	4000002
03055	0700	00	0	72752		CPY D111	L	0
03056	0762	00	0	00000	LRD3	RDS		
03057	0460	00	0	72747		LDA D52	L	124000252
03060	0700	00	0	72754		CPY D333	L	0
03061	0762	00	0	00000	LRD2	RDS		
03062	0460	00	0	72750		LDA D252	L	524000252
03063	0700	00	0	72753		CPY D222	L	0
03064	0762	00	0	00000	LRD4	RDS		
03065	0460	00	0	72751		LDA D1252	L	2524001252
03066	0700	00	0	72755		CPY D444	L	0
03067	0020	00	0	03071		TRA LCP1		

\* CHECK FOR CORRECT LDA EXECUTION FOR DRUM 1

03070	432421606060					BCD 1LDA		
03071	0500	00	0	72746	LCP1	CLA D02	L	40000002
03072	0340	00	0	72752		CAS D111		
03073	0020	00	0	03075		TRA LCP1+4		ERROR
03074	0020	00	0	03103		TRA LCP2		OK
03075	0560	00	0	72752		LDQ D111		ERROR
03076	0131	00	0	00000		XCA		
03077	0074	00	4	06266		TSX ERROR-2,4		
03100	0020	00	0	03071		TRA LCP1		
03101	0020	00	0	03103		TRA LCP2		

\* CHECK FOR CORRECT LDA EXECUTION FOR DRUM 2

03102	432421606060					BCD 1LDA		
03103	0500	00	0	72750	LCP2	CLA D252	L	124000252
03104	0340	00	0	72753		CAS D222		
03105	0020	00	0	03107		TRA LCP2+4		ERROR

03106 0020 00 0 03115 TRA LCP3 OK  
 03107 0560 00 0 72753 LDQ D222 ERROR  
 03110 0131 00 0 00000 XCA  
 03111 0074 00 4 06266 TSX ERROR-2,4  
 03112 0020 00 0 03103 TRA LCP2  
 03113 0020 00 0 03115 TRA LCP3

\* CHECK FOR CORRECT LDA EXECUTION FOR DRUM 3

03114 432421606060 BCD 1LDA  
 03115 0500 00 0 72747 LCP3 CLA D52 L 524000252  
 03116 0340 00 0 72754 CAS D333  
 03117 0020 00 0 03121 TRA LCP3+4 ERROR  
 03120 0020 00 0 03127 TRA LCP4 OK  
 03121 0560 00 0 72754 LDQ D333 ERROR  
 03122 0131 00 0 00000 XCA  
 03123 0074 00 4 06266 TSX ERROR-2,4  
 03124 0020 00 0 03115 TRA LCP3  
 03125 0020 00 0 03127 TRA LCP4

\* CHECK FOR CORRECT LDA EXECUTION FOR DRUM 4

03126 432421606060 BCD 1LDA  
 03127 0500 00 0 72751 LCP4 CLA D1252 L 2524001252  
 03130 0340 00 0 72755 CAS D444  
 03131 0020 00 0 03133 TRA LCP4+4 ERROR  
 03132 0020 00 0 03137 TRA LEND OK  
 03133 0560 00 0 72755 LDQ D444 ERROR  
 03134 0131 00 0 00000 XCA  
 03135 0074 00 4 06266 TSX ERROR-2,4  
 03136 0020 00 0 03127 TRA LCP4  
  
 03137 0074 00 4 06275 LEND TSX OK,4  
 03140 0020 00 0 02702 TRA DAS

\* ENTER RANDOM NUMBERS TEST

\*

\* ZERO SELECTED DRUM

03141 662451606060 BCD 1WDR  
 03142 0766 00 0 00000 R WRS  
 03143 0534 00 1 72675 LXK K4000,1 L 4000  
 03144 0700 00 0 72756 CPY TEST1 L ZERO  
 03145 2 00001 1 03144 TIX R+2,1,1  
 03146 0500 00 0 72757 CLA THREE L 3  
 03147 0601 00 0 72760 STO CT6

\* GENERATE 100 OCTAL RANDOM NUMBERS

03150 0500 00 0 73352 R1 CLA RN+63  
 03151 0601 00 0 72761 STO PRNG  
 03152 0534 00 1 72762 LXK K100,1 L 100  
 03153 0560 00 0 73352 LDQ RN+63  
 03154 -0773 00 0 00001 RQL 1  
 03155 0200 00 0 72763 MPY RR L 357642357563



03156 -0600 00 1 73353 STQ RN+64,1  
 03157 2 00001 1 03154 TIX R1+4,1,1

\* CREATE RANDOM LDA ADDRESS

03160 -0500 00 0 73352 R2 CAL RN+63  
 03161 -0320 00 0 72764 ANA K3777 L 3777  
 03162 0621 00 0 72765 STA RN7  
 03163 -0754 00 0 00000 PXD CLEAR ACC

\* SELECT RANDOM LDA AND WRITE 100 OCTAL LOCATIONS  
 \* WITH RANDOM NUMBERS

\* FINISH LOADING ENTIRE DRUM -3700 OCTAL LOCATIONS-  
 \* WITH ZERO WORDS

03164 0766 00 0 00000 R3 WRS  
 03165 0534 00 1 72762 LXA K100,1 L 100  
 03166 0534 00 2 72767 LXA K3700,2 L 3700  
 03167 0460 00 0 72765 LDA RN7  
 03170 -0700 00 1 73353 CAD RN+64,1  
 03171 2 00001 1 03170 TIX R3+4,1,1  
 03172 -0700 00 0 72756 CAD TEST1  
 03173 2 00001 2 03172 TIX R3+6,2,1  
 03174 0602 00 0 72766 SLW CAD  
 03175 0774 00 2 00000 AXT 0,2 CLEAR XRB  
 03176 0020 00 0 03200 TRA R4

\* READ ENTIRE DRUM INTO STORAGE

03177 432421606060 BCD 1LDA  
 03200 0762 00 0 00000 R4 RDS  
 03201 -0754 00 0 00000 PXD CLEAR ACC  
 03202 0534 00 1 72675 LXA K4000,1 L 4000  
 03203 -0700 00 1 77753 CAD X,1  
 03204 2 00001 1 03203 TIX R4+3,1,1  
 03205 0602 00 0 72650 SLW Z20 SAVE CHECK SUM

\* COMPATE RANDOM NUMBER WRITTEN AT RANDOM LDA  
 \* WITH WORD GENERATED FOR THAT POSITION

\* CHECK FIRST RANDOM ADDRESS

03206 0500 00 0 72675 CLA K4000 ADJUST WORD NUMBER  
 03207 0402 00 0 72765 SUB RN7 FOR PRINT ROUTINE  
 03210 0734 00 1 00000 PAX 0,1  
  
 03211 0500 00 0 72765 R5 CLA RN7 RANDOM LDA  
 03212 0400 00 0 77753 ADD K2377  
 03213 0621 00 0 03216 STA R5+5 TO CAS CORRECT ADDRESS  
 03214 0621 00 0 03221 STA R5+8 TO LOAD CORRECT WORD IN MQ  
 03215 0500 00 0 73253 CLA RN  
 03216 0340 00 0 00000 CAS 0 N WORDS  
 03217 0020 00 0 03221 TRA R5+8  
 03220 0020 00 0 03224 TRA R6 OK  
 03221 0560 00 0 00000 LDQ 0 CORRECT WORD

03222 0074 00 4 06266 TSX ERROR-2,4 LDA ERROR FIRST WORD  
 03223 0020 00 0 03200 TRA R4

\* CHECK DRUM ADDRESS ZERO

03224 0500 00 0 72765 R6 CLA RN7 RANDOM LDA  
 03225 0402 00 0 72767 SUB K3700 L 3700  
 03226 -0120 00 0 03243 TMI R7 K 3700 GREATER THEN RN7  
 03227 0100 00 0 03243 TZE R7 K 3700 EQUAL TO RN7  
 03230 0621 00 0 06342 STA WDNO  
 03231 0734 00 1 00000 PAX 0,1 RN7 GREATER THEN K 3700  
 03232 0500 00 1 73353 CLA RN+64,1 WORD READ  
 03233 0340 00 0 73753 CAS X-2048  
 03234 0020 00 0 03236 TRA R6+10  
 03235 0020 00 0 03241 TRA \*+4  
 03236 0560 00 0 73753 LDQ X-2048 CORRECT WORD  
 03237 0074 00 4 06266 TSX ERROR-2,4  
 03240 0020 00 0 03200 TRA R4  
 03241 0500 00 0 72675 CLA K4000  
 03242 0601 00 0 06342 STO WDNO

\* CHECK ADDRESS OF LAST RANDOM WORD WRITTEN

03243 0500 00 0 72765 R7 CLA RN7  
 03244 0400 00 0 72762 ADD K100  
 03245 -0320 00 0 72764 ANA K3777  
 03246 0400 00 0 72764 ADD K3777  
 03247 -0320 00 0 72764 ANA K3777  
  
 03250 0621 00 0 72770 STA T21 ADJUST WORD NUMBER  
 03251 0500 00 0 72675 CLA K4000 FOR PRINT ROUTINE  
 03252 0402 00 0 72770 SUB T21  
 03253 0734 00 1 00000 PAX 0,1  
  
 03254 0500 00 0 72770 CLA T21  
 03255 0400 00 0 77753 ADD K2377  
 03256 0621 00 0 03261 STA R7+14  
 03257 0621 00 0 03264 STA R7+17  
 03260 0500 00 0 73352 CLA RN+63 WORD READ  
 03261 0340 00 0 00000 CAS 0  
 03262 0020 00 0 03264 TRA R7+17  
 03263 0020 00 0 03267 TRA R8  
 03264 0560 00 0 00000 LDQ 0 CORRECT WORD  
 03265 0074 00 4 06266 TSX ERROR-2,4  
 03266 0020 00 0 03200 TRA R4

\* CHECK SUM TEST WRITE DRUM AGAINST MEMORY

03267 -0754 00 0 00000 R8 PXD CLEAR AC  
 03270 0534 00 1 72675 LXA K4000,1  
 03271 0361 00 1 77753 ACL X,1  
 03272 2 00001 1 03271 TIX R8+2,1,1  
 03273 0602 00 0 72771 SLW T6 CHECK SUM DRUM-WRITE  
 03274 0020 00 0 03276 TRA \*+2  
  
 03275 232124606060 BCD 1CAD

03276	-0500	00	0	72650		CAL Z20	COMPUTED SUM
03277	0560	00	0	72771		LDQ T6	CORRECT CHECK SUM
03300	-0340	00	0	72771		LAS T6	TEST CHECK SUM
03301	0020	00	0	03303		TRA *+2	ERROR
03302	0020	00	0	03305		TRA *+3	
03303	0074	00	4	06266		TSX ERROR-2,4	
03304	0761	00	0	03276		NOP *-6	
03305	-0754	00	0	00000	R9	PXD	CLEAR AC
03306	0534	00	1	72762		LXA K100,1	
03307	0361	00	1	73353		ACL RN+64,1	
03310	2	00001	1	03307		TIX R9+2,1,1	
03311	0602	00	0	72721		SLW T7	CHECK SUM MEMORY
03312	0020	00	0	03314		TRA *+2	
03313	232124606060					BCD 1CAD	
03314	-0500	00	0	72766		CAL CAD	COMPUTED SUM
03315	0560	00	0	72721		LDQ T7	CORRECT SUM
03316	-0340	00	0	72721		LAS T7	FORMED FROM 100 NOS IN MEM.
03317	0020	00	0	03321		TRA *+2	ERROR
03320	0020	00	0	03323		TRA *+3	
03321	0074	00	4	06266		TSX ERROR-2,4	
03322	0761	00	0	03314		NOP *-6	
03323	0500	00	0	72771		CLA T6	
03324	0340	00	0	72721		CAS T7	
03325	0020	00	0	03327		TRA *+2	
03326	0020	00	0	03335		TRA R10	
03327	0560	00	0	72721		LDQ T7	
03330	0074	00	4	06266		TSX ERROR-2,4	LDA CHECK SUM ERROR
03331	0020	00	0	03200		TRA R4	
03332	0074	00	4	06275		TSX OK,4	
03333	0020	00	0	03142		TRA R	
*	CHECK SUM TEST READ LDA CHECK SUM						
03334	432421606060					BCD 1LDA	
03335	0762	00	0	00000	R10	RDS	
03336	0534	00	1	72762		LXA K100,1	
03337	0460	00	0	72765		LDA RN7	
03340	0700	00	1	74053		CPY X-1984,1	
03341	2	00001	1	03340		TIX R10+3,1,1	
03342	-0754	00	0	00000	R11	PXD	CLEAR AC
03343	0534	00	1	72762		LXA K100,1	
03344	0361	00	1	74053		ACL X-1984,1	
03345	2	00001	1	03344		TIX R11+2,1,1	
03346	0602	00	0	72721		SLW T7	
03347	0500	00	0	72771		CLA T6	
03350	0340	00	0	72721		CAS T7	
03351	0020	00	0	03353		TRA R11+9	ERROR
03352	0020	00	0	03356		TRA R12-2	OK
03353	0560	00	0	72721		LDQ T7	
03354	0074	00	4	06266		TSX ERROR-2,4	READ LDA ERROR-CK SUM

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03355 0020 00 0 03335          TRA R10

*      GENERATE 4000 OCTAL RANDOM NUMBERS

03356 0774 00 2 00003          AXT 3,2          LOAD XRB-3
03357 0774 00 4 00002          AXT 2,4          LOAD XRC-2
03360 0534 00 1 72675  R12     LXA K4000,1
03361 0560 00 0 73352          LDQ RN+63
03362 -0773 00 0 00001          RQL 1
03363 0200 00 0 72763          MPY RR          L 357642357563
03364 -0600 00 1 77753          STQ X,1
03365 2 00001 1 03362          TIX R12+2,1,1

*      LOAD FULL RANDOM DRUM THREE TIMES WITH SAME RANDOM PATTERN

03366 0766 00 0 00000  R13     WRS
03367 0534 00 1 72675          LXA K4000,1  LOAD XRA-4000
03370 0700 00 1 77753          CPY X,1
03371 2 00001 1 03370          TIX *-1,1,1  COPY FULL DRUM FROM ZERO
03372 2 00001 2 03367          TIX *-3,2,1  RETURN TO WRITE DRUM
                                     THREE TIMES WITHOUT
                                     RE-SELECTING. THIS ROUTINE
                                     TAKES ADVANTAGE OF THE
                                     INDEX GAP.

03373 2 00001 4 03404          TIX R13A,4,1  DECREMENT TO RE-WRITE
                                     WITH NEW PATTERN

03374 0020 00 0 03376          TRA *+2

03375 314663606060           BCD 1IOT

03376 0760 00 0 00005          IOT          CHECK IOT LIGHT
03377 0020 00 0 03401          TRA *+2          ERROR-SHOULD NOT BE ON
03400 0020 00 0 03403          TRA *+3          OK-LIGHT IS OFF
03401 0074 00 4 06267          TSX ERROR-1,4  IF I/O CHECK COMES UP AT
03402 -3 00000 4 03376          TXL *-4,4,0    THIS POINT. THE DRUM
                                     DISCONNECTED. 72 US WERE
                                     USED IN THE INDEX GAP.
                                     AS THE GAP SHOULD BE
                                     150-350 US. THE GAP IS
                                     MUCH TO SHORT, AND DRUM
                                     SHOULD BE RE-WRITTEN
03403 0020 00 0 03410          TRA R14          DRUM HAS BEEN RE-WRITTEN
                                     WITH NEW PATTERN. GO TO
                                     READ NEW PATTERN.

*      GENERATE 4000 OCTAL RANDOM NUMBERS
*      WRITE NEW RANDOM PATTERN ONCE

03404 0534 00 1 72675  R13A    LXA K4000,1  L 4000
03405 0500 00 1 77753          CLA X,1
03406 0601 00 0 73352          STO RN+63
03407 0020 00 0 03361          TRA R12+1

*      READ ENTIRE DRUM BACK INTO MEMORY

03410 0762 00 0 00000  R14     RDS

```

03411 0534 00 1 72675 LXA K4000,1  
 03412 0700 00 1 77753 CPY X,1  
 03413 2 00001 1 03412 TIX R14+2,1,1  
 03414 0020 00 0 03416 TRA R15

\* COMPARE WORD WRITTEN TO WORD READ

03415 512451606060 BCD 1RDR  
 03416 0534 00 1 72675 R15 LXA K4000,1  
 03417 0560 00 0 73352 LDQ RN+63  
 03420 -0773 00 0 00001 RQL 1  
 03421 0200 00 0 72763 MPY RR  
 03422 -0600 00 0 72772 STQ T10  
 03423 0500 00 1 77753 CLA X,1 WORD READ  
 03424 0340 00 0 72772 CAS T10 CORRECT WORD  
 03425 0020 00 0 03427 TRA R15+9  
 03426 0020 00 0 03432 TRA R16 OK  
 03427 0560 00 0 72772 LDQ T10 CORRECT WORD  
 03430 0074 00 4 06266 TSX ERROR-2,4  
 03431 0020 00 0 03416 TRA R15

03432 0560 00 0 72772 R16 LDQ T10  
 03433 2 00001 1 03420 TIX R15+2,1,1  
 03434 0500 00 0 72763 CLA RR MODIFY RN GENERATOR  
 03435 0400 00 0 72773 ADD K7 L 010776004377  
 03436 0601 00 0 72763 STO RR  
 03437 0074 00 4 06275 TSX OK,4  
 03440 0020 00 0 03142 TRA R  
 03441 0761 00 0 00000 NOP

\*\*\*\*\*  
 \* TEST LDA-IND. ADDR., LDA-INDEXED, AND NO HANG UP ON COPY \*  
 \*\*\*\*\*

03442 0534 00 1 72757 BEGEN LXA THREE,1 L+3  
 03443 0754 00 1 00000 PXA 0,1  
 03444 0400 00 0 72017 ADD ONE L+1  
 03445 0601 00 0 06342 STO WDNO SET WDNO CONSTANT  
 03446 0766 00 0 00300 WDR  
 03447 0460 60 0 72774 LDA\* WRDR-2 L ADDR K1000  
 03450 0700 00 0 72745 CPY TEST3 L+2525252525225  
 03451 2 00001 1 03451 TIX \*,1,1  
 03452 0700 00 0 73004 CPY TEST4 HANG UP CONDITION MY OCCUR  
 AT THIS POINT. IF SO DRUM  
 MAY NOT HAVE DISCONNECTED  
 AFTER DELAY. LOOK AT SYSTEM  
 PAGE 5.03.01.  
 03453 0020 00 0 03455 TRA \*+2  
 03454 314663606060 BCD 1IOT TEST I/O TGR AND INDICATOR  
 03455 0760 00 0 00005 IOT IS INDICATOR ON  
 03456 0020 00 0 03463 TRA \*+5 YES-OK  
 03457 0074 00 4 06267 TSX ERROR-1,4 INDICATOR SHOULD HAVE BEEN

TURNED ON WHEN CPY WAS  
 GIVEN AFTER DELAY OF OVER  
 36US. LOOK AT SYSTEMS  
 PAGE 5.03.01

03460	-3	00000	4	03455		TXL *-3,4,0	
03461	0020	00	0	03463		TRA *+2	CONTINUE
03462	432421603121					BCD 1LDA IA	TEST LDA IND. ADDRESSED
03463	0762	00	0	00300	BUG	RDR	
03464	0460	00	0	72676		LDA K1000	CORRECT LDA
03465	0700	00	0	72777		CPY HECK	READ ONE WORD
03466	0700	00	0	73000		CPY HECK+1	READ LOC. OF DUMMY COPY
03467	0500	00	0	72777		CLA HECK	WORD READ
03470	0560	00	0	72745		LDQ TEST3	WORD WRITTEN
03471	0340	00	0	72745		CAS TEST3	
03472	0020	00	0	03474		TRA *+2	ERROR
03473	0020	00	0	03476		TRA *+3	OK
03474	0074	00	4	06266		TSX ERROR-2,4	ERROR COULD HAVE BEEN A
03475	0761	00	0	03463		NOP BUG	OR WRITE ERROR
03476	2	00001	1	03500		TIX *+2,1,1	CONTINUE
03477	0020	00	0	03501		TRA *+2	
03500	234770606060					BCD 1CPY	TEST THAT COPY AFTER DISCONNECT DOES NOT TRANSMIT
03501	0500	00	0	73000		CLA HECK+1	WORD READ
03502	0340	00	0	73004		CAS TEST4	WORD WAS WRITTEN BUT IT SHOULD NOT HAVE BEEN
03503	0020	00	0	03510		TRA *+5	OK
03504	0020	00	0	03506		TRA *+2	ERROR-WORD SHOULD NOT HAVE BEEN TRANSMITTED
03505	0020	00	0	03510		TRA *+3	OK
03506	0074	00	4	06267		TSX ERROR-1,4	COPY AFTER LAPSE OF MORE
03507	-3	00000	4	03501		TXL *-6,4,0	THEN 36US WAS COMPLETED COPY SHOULD HAVE ACTED AS A NOP
03510	0074	00	4	06275		TSX OK,4	OUT TO TEST SWITCHES
03511	0020	00	0	00030		TRA BEGIN	REPEAT WITH SW=1 DOWN
03512	0761	00	0	00000		NOP	
03513	0534	00	1	72757	AGAIN	LXA THREE,1	L+3
03514	0766	00	0	00300		WDR	
03515	0460	00	1	72701		LDA K,1	EFFECTED ADDR K1000
03516	0700	00	1	73010		CPY TEST2+3,1	COPY THREE WORDS
03517	2	00001	1	03516		TIX *-1,1,1	
03520	0500	00	0	72744		CLA D4B	L+4
03521	0601	00	0	06342		STO WDNO	SET WD NO CONSTANT
03522	0534	00	1	72757		LXA THREE,1	L+3
03523	0762	00	0	00300		RDR	
03524	0460	00	0	72676		LDA K1000	L ADDR. 1000

03525	0700	00	1	73002		CPY	HECK+3,1	READ	THREE	WORDS
03526	2	00001	1	03525		TIX	*-1,1,1			
03527	0020	00	0	03531		TRA	*+2			
03530	432421603167					BCD	1LDA IX	TEST	LDA	INDEXED
03531	0534	00	1	72757	INDEX	LXA	THREE,1	L+3		
03532	0500	00	1	73002		CLA	HECK+3,1	WORD	READ	
03533	0560	00	1	73010		LDQ	TEST2+3,1	WORD	WRITTEN	
03534	0340	00	1	73010		CAS	TEST2+3,1			
03535	0020	00	0	03537		TRA	*+2	ERROR		
03536	0020	00	0	03541		TRA	*+3	OK		
03537	0074	00	4	06266		TSX	ERROR-2,4	ERROR	COULD	HAVE BEEN READ
03540	0761	00	0	03531		NOP	INDEX	OR	WRITE	ERROR
03541	2	00001	1	03532		TIX	INDEX+1,1,1			
03542	0534	00	1	71632		LXA	TWO,1	L+2		
03543	0766	00	0	00300		WDR				
03544	0460	60	1	72776		LDA*	WRDR,1	EFFECTIVE	ADDR,	K1000
03545	0700	00	1	73007		CPY	TEST2+2,1	WRITE	TWO	WORDS
03546	2	00001	1	03545		TIX	*-1,1,1			
03547	0020	00	0	03551		TRA	*+2	CONTINUE		
03550	432467606731					BCD	1LDX XI	TEST	LDA	INDEXED + INDIRECT
03551	0762	00	0	00300	BUGS	RDR				
03552	0460	00	0	72676		LDA	K1000	L	1000	IN ADDR
03553	0534	00	1	71632		LXA	TWO,1	L+2		
03554	0700	00	1	73001		CPY	HECK+2,1	READ	TWO	WORDS
03555	2	00001	1	03554		TIX	*-1,1,1			
03556	0534	00	1	71632		LXA	TWO,1	L+2		
03557	0500	00	0	72757		CLA	THREE	L+3		
03560	0601	00	0	06342		STO	WDNO	SET	WORD	NO CONSTANT
03561	0500	00	1	73001		CLA	HECK+2,1	WORD	READ	
03562	0560	00	1	73007		LDQ	TEST2+2,1	WORD	WRITTEN	
03563	0340	00	1	73007		CAS	TEST2+2,1			
03564	0020	00	0	03566		TRA	*+2	ERROR		
03565	0020	00	0	03570		TRA	*+3	OK		
03566	0074	00	4	06266		TSX	ERROR-2,4	ERROR	COULD	HAVE BEEN A READ OR WRITE ERROR IF NO ERROR INDICATION IN READ AND WRITE SECTION OF THIS TEST, LDA IND. ADDR. OR LDA INDEXED, IT MUST BE ASSUMED THAT THE ERROR CAME ABOUT THROUGH THE USE OF THE COMBINED INDEXING AND IND. ADDRESSING OF LDA
03567	0761	00	0	03551		NOP	BUGS			
03570	2	00001	1	03561		TIX	*-7,1,1	CHECK	ALL	WORDS
03571	0074	00	4	06275		TSX	OK,4	OUT	TO	TEST SWITCHES
03572	0020	00	0	03531		TRA	INDEX			
03573	0761	00	0	00000		NOP				
03574	0762	00	0	00300		RDR				

03575	0460	00	0	72776	LDA	WRDR	
03576	0700	00	0	73002	CPY	CHEC	
03577	0762	00	0	00300	RDR		
03600	0460	00	0	72774	LDA	WRDR-2	
03601	0700	00	0	73003	CPY	CHEC+1	
03602	0500	00	0	73002	CLA	CHEC	
03603	0340	00	0	73005	CAS	TEST2	
03604	0020	00	0	03611	TRA	*+5	OK
03605	0020	00	0	03607	TRA	*+2	ERROR
03606	0020	00	0	03611	TRA	*+3	OK
03607	0074	00	4	06267	TSX	ERROR-1,4	ERROR HERE WOULD INDICATE
03610	-3	00000	4	03531	TXL	INDEX,4,0	LDA INDEXING FAILURE THIS ERROR WOULD BE TIED IN WITH AN ERROR IN ROUTINE AT BUGS

03611	2	00001	1	03612	TIX	*+1,1,1	
03612	0500	00	0	73003	CLA	CHEC+1	
03613	0340	00	0	73005	CAS	TEST2	
03614	0020	00	0	03621	TRA	*+5	OK
03615	0020	00	0	03617	TRA	*+2	ERROR
03616	0020	00	0	03621	TRA	*+3	OK
03617	0074	00	4	06267	TSX	ERROR-1,4	ERROR HERE WOULD INDICATE
03620	-3	00000	4	03463	TXL	BUG,4,0	LDA IND. ADDRESS FAILURE THIS ERROR WOULD BE TIED IN WITH AN ERROR IN ROUTINE AT BUGS

03621	0074	00	4	06275	TSX	OK,4	OUT TO TEST SWITCHES
03622	0020	00	0	03513	TRA	AGAIN	REPEAT SW=1 DOWN
03623	0761	00	0	00000	NOP		
03624	0020	00	0	02433	TRA	DAD+2	

03625	0760	00	0	00163	SWT	3	
03626	0020	00	0	03630	TRA	*+2	
03627	0020	00	0	03633	TRA	*+4	

\* PRINT --  
\*\* 00000 ALL DRUMS TESTED-SECTION 4 COMPLETE

03630	0766	00	0	01361	WPRA		PRINT SECTION COMPLETE
03631	0760	00	0	01363	SPRA	3	
03632	0540	00	0	77757	RCHA	SECTN+3	



\*ROUTINE TO TEST FOR A CONDITION OF I/O SELECTION  
 \*AND DRUM SELECTION, SIMILTANEOUSLY.

03633	0500	00	0	72653	CLA	DRUM	
03634	0100	00	0	03742	TZE	CRT-6	
03635	-0520	00	0	73011	NZT	TPCHA	TAPE CHANNEL A
03636	0020	00	0	03742	TRA	CRT-6	NO
03637	-0520	00	0	73022	NZT	TPCHB	TAPE CHANNEL B
03640	0020	00	0	03742	TRA	CRT-6	NO
03641	0074	00	4	05544	TSX	CTX, 4	
03642	0037	15	0	03642	HTR	*, 0, RDWTB+4	
03643	0600	00	0	71320	STZ	SAVE	
03644	0600	00	0	71321	STZ	SAVE1	
03645	0020	00	0	03647	TRA	*+2	
03646	666360662451				BCD	1WT WDR	
03647	0766	00	0	02220	IOSEL	WTBB	SELECT I/O UNIT-WRITE
03650	-0540	00	0	71457	RCHB	WTB1	WRITE 400 WORDS
03651	0766	00	0	00301	WDR	1	SELECT DRUM
03652	0061	00	0	03654	TCOB	*+2	ERROR
03653	0020	00	0	03657	TRA	*+4	OK
03654	0700	00	0	00000	CPY		DISCONNECT
03655	0074	00	4	06266	TSX	ERROR-2, 4	ERROR HERE WILL INDICATE
03656	-3	00000	0	03647	TXL	IOSEL,	THAT IT WAS POSSIBLE TO
							SELECT DRUM WITH AN I/O
							UNIT PREVIOUSLY SELECTED.
							LOOK AT SYSTEMS PAGE 5.01.03
							DRUM WRITE SEL SHOULD
							NOT HAVE GOTTEN THROUGH
							OR CIRCUIT 1183-D.
03657	0700	00	0	00000	CPY		DISCONNECT
03660	0020	00	0	03662	TRA	*+2	
03661	666360512451				BCD	1WT RDR	
03662	0766	00	0	01220	WTBA		SELECT I/O UNIT
03663	0540	00	0	71457	RCHA	WTB1	WRITE 400 WORDS.
03664	0762	00	0	00301	RDR	1	SELECT DRUM
03665	0060	00	0	03667	TCOA	*+2	ERROR
03666	0020	00	0	03672	TRA	*+4	OK
03667	0700	00	0	00000	CPY		DISCONNECT
03670	0074	00	4	06266	TSX	ERROR-2, 4	ERROR HERE WILL INDICATE
							ERROR HERE WILL INDICATE
							SAME CIRCUIT AS ABOVE
							ERROR INDICATED WITH
							THE EXCEPTION THAT THE
							OPPOSITE SIDE OF THE
							CIRCUIT IS AFFECTED. IF

ONE OF THESE TWO LOOPS  
 FAILED AND THE OTHER WORKED  
 CORRECTLY WE CAN ASSUME  
 THAT INVERTER 1183-058  
 WORKED CORRECTLY.

03671	-3	00000	0	03662	TXL *-7	
03672	0700	00	0	00000	CPY	DISCONNECT
03673	0020	00	0	03675	TRA *+2	CONTINUE
03674	662451605163				BCD 1WDR RT	
03675	0760	00	0	00005	IOT	TURN OFF I/O INDICATOR
03676	0761	00	0	00000	NOP	
03677	0766	00	0	00301	WDR 1	SELECT DRUM
03700	0700	00	0	72016	CPY ZERO	COPY ZERO WORD INTO DRUM ADDRESS ZERO
03701	0762	00	0	01220	RTBA	SELECT TAPE
03702	0700	00	0	71566	CPY ONES	L ALL ONES
03703	0760	00	0	00005	IOT	
03704	0020	00	0	03711	TRA *+5	OK
03705	0074	00	4	06267	TSX ERROR-1,4	ERROR AT THIS POINT WILL INDICATE THAT IT WAS POSSIBLE TO SELECT THE TAPE AFTER THE DRUM HAD BEEN SELECTED. LOOK AT SYSTEMS PAGE 5.01.07., AND CIRCUIT 1036-S.
03706	-3	00000	0	03677	TXL *-7	
03707	0020	00	0	03711	TRA *+2	
03710	512451606663				BCD 1RDR WT	
03711	0762	00	0	00301	RDWTB RDR 1	
03712	0700	00	0	71320	CPY SAVE	
03713	0766	00	0	02220	WTBB	
03714	0700	00	0	71321	CPY SAVE1	
03715	0760	00	0	00005	IOT	
03716	0020	00	0	03721	TRA *+3	OK
03717	0074	00	4	06267	TSX ERROR-1,4	ERROR AT THIS POINT WILL INDICATE SAME TROUBLE AS ROUTINE ABOVE EXCEPT THAT THE OPPOSITE SIDE OF THE AND CIRUIT IS AFFECTED.
03720	-3	00000	0	03711	TXL *-7	
03721	0500	00	0	71320	CLA SAVE	WORD READ
03722	0560	00	0	72016	LDQ ZERO	CORRECT WORD
03723	0340	00	0	72016	CAS ZERO	
03724	0020	00	0	03726	TRA *+2	ERROR
03725	0020	00	0	03730	TRA *+3	OK
03726	0074	00	4	06266	TSX ERROR-2,4	ERROR HERE INDICATES THAT WORD WHICH SOULD HAVE BEEN PLACED ON
03727	0761	00	0	03711	NOP RDWTB	

DRUM AT LOCATION ZERO  
WAS WRITTEN OR READ  
INCORRECTLY.

03730	0500	00	0	71321	CLA SAVE1	WORD READ
03731	0560	00	0	72016	LDQ ZERO	NO INFORMATION SHOULD
03732	0340	00	0	72016	CAS ZERO	HAVE BEEN TRANSMITTED
03733	0020	00	0	03735	TRA *+2	ERROR
03734	0020	00	0	03737	TRA *+3	OK
03735	0074	00	4	06267	TSX ERROR-1,4	ERROR INDICATES WORD
03736	0761	00	0	03711	NOP RDWTB	WAS TRANSMITTED AFTER DRUM SHOULD HAVE DISCONNECTED.
03737	0074	00	4	06275	TSX OK,4	
03740	0020	00	0	03643	TRA IOSEL-4	REPEAT
03741	0761	00	0	00000	NOP	
03742	0760	00	0	00163	SWT 3	
03743	0020	00	0	03745	TRA *+2	
03744	0020	00	0	03750	TRA *+4	

\* PRINT --

\*\* 00000 DRUM AND I/O SELECTION INTERLOCK-SECTION 5 COMPLETE

03745	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE
03746	0760	00	0	01363	SPRA 3	
03747	0540	00	0	77760	RCHA SECTN+4	

\*TEST ABILITY OF 709 TO DISPLAY CRT WHILE WRITING  
 \*TAPE, AND READ TAPE WHILE CRT IS BEING DISPLAYED

03750	0441	00	0	05531	CRT	LDI CTRL1		
03751	-0056	00	0	000001		LNT 1	TEST FOR CRT	
03752	0020	00	0	04151		TRA EFP-16		
03753	0074	00	4	05544		TSX CTX,4	OUT TO MODIFY TAPE INSTR	
03754	0040	66	0	03756		HTR JACK,0,BIG		

\* UNIONJACK ROUTINE

03755	0774	00	2	01000		AXT 512,2	REPEAT 1000 TIMES	
03756	0766	00	0	00030	JACK	WTV		
03757	-0520	00	0	73011		NZT TPCHA	TEST FOR TAPE-CHAN A	
03760	0020	00	0	03765		TRA *+5		
03761	0020	00	0	03763		TRA *+2		

03762	516322216060					BCD 1RTBA		
03763	0766	00	0	01220		WTBA		
03764	0540	00	0	71450		RCHA RCDA-2		
03765	0534	00	1	73210		LXA KK1,1	LI2	
03766	0700	00	1	73210		CPY KK1,1		
03767	2	00001	1	03766		TIX *-1,1,1		
03770	2	00001	2	03765		TIX *-3,2,1		
03771	0074	00	4	06275		TSX OK,4		
03772	0020	00	0	03756		TRA JACK		
03773	0761	00	0	00000		NOP		

\*DOT CHECKERBOARD TEST

03774	0500	00	0	71651		CLA CNT2		
03775	0601	00	0	71650		STO CNT1		
03776	0766	00	0	00030	DOT	WTV		
03777	0600	00	0	73214		STZ D1S		
04000	0534	00	4	73211		LXA QQ,4	L2000	
04001	0534	00	2	73211	ROW	LXA QQ,2	L2000	
04002	-0754	00	2	00000	NEXT	PXD 0,2		
04003	0402	00	0	73212		SUB Q1	L 002000 000000	
04004	0760	00	0	00003		SSP		
04005	0622	00	0	73214		STD D1S		
04006	0700	00	0	73214		CPY D1S		
04007	2	00100	2	04002		TIX NEXT,2,64		

04010	0500	00	0	73214		CLA D1S		
04011	0400	00	0	73216		ADD KON2	L 77	
04012	0622	00	0	73214		STD D1S		
04013	0700	00	0	73214		CPY D1S		
04014	-0754	00	4	00000		PXD 0,4		
04015	0771	00	0	00022		ARS 18		
04016	0402	00	0	73213		SUB Q2	L 000000 002100	

04017	0760	00	0	00003		SSP		
04020	0621	00	0	73214		STA D1S		
04021	2	00100	4	04001		TIX ROW,4,64		
04022	0534	00	1	73211		LXA QQ,1	L2000	
04023	-0754	00	1	00000	LAST	PXD 0,1		
04024	0402	00	0	73212		SUB Q1	L 002000 000000	
04025	0760	00	0	00003		SSP		
04026	0622	00	0	73217		STD SIN		
04027	0700	00	0	73217		CPY SIN		
04030	2	00100	1	04023		TIX LAST,1,64		
04031	0500	00	0	73217		CLA SIN		
04032	0400	00	0	73216		ADD KON2	L 77	
04033	0622	00	0	73217		STD SIN		
04034	0700	00	0	73217		CPY SIN		
04035	0500	00	0	71650		CLA CNT1		
04036	0100	00	0	04042		TZE LIGHT		
04037	0402	00	0	72017		SUB ONE		
04040	0601	00	0	71650		STO CNT1		
04041	0020	00	0	03777		TRA DOT+1		

\*INTENSITY TEST

04042	0766	00	0	00030	LIGHT	WTV		
04043	0774	00	4	00012		AXT 10,4		
04044	-0534	00	2	73226		LXD P,2	L 2	
04045	0534	00	1	73222	BOAT	LXA W,1	L 400	
04046	0700	00	2	73225	APT	CPY Z,2		
04047	0500	00	2	73225		CLA Z,2		
04050	0400	00	2	73222		ADD W,2		
04051	0601	00	2	73225		STO Z,2		
04052	2	00001	1	04046		TIX APT,1,1		
04053	2	00001	2	04045		TIX BOAT,2,1		
04054	0500	00	0	73225		CLA Z		
04055	0621	00	0	73223		STA XX		
04056	0622	00	0	73224		STD Y		
04057	2	00001	4	04044		TIX LIGHT+2,4,1		

\*START DOT INTENSITY TEST

04060	-0520	00	0	73011		NZT TPCHA	TEST FOR TAPE-CHAN A	
04061	0020	00	0	04065		TRA *+4		
04062	0764	00	0	01200		BSRA		
04063	0762	00	0	01220		RTBA		
04064	0540	00	0	71451		RCHA SHIMG+6	NO IND ON-WC 400	
							READ 1 RECORD	
04065	0774	00	1	01000		AXT 512,1	REPEAT 1000 TIMES	
04066	0766	00	0	00030	BIG	WTV		
04067	0534	00	4	73231		LXA N,4	L 10	

04070	0500	00	0	73227	F	CLA	CPY		
04071	-0760	00	0	00003		SSM			
04072	0400	00	0	73230		ADD	M	L-000100 000100	
04073	0601	00	0	73227		STO	CPY		
04074	0700	00	0	73227		CPY	CPY		
04075	0500	00	0	73227		CLA	CPY		
04076	0400	00	0	73230		ADD	M	L-000100 000100	
04077	0760	00	0	00003		SSP			
04100	0601	00	0	73227		STO	CPY		
04101	0700	00	0	73227		CPY	CPY		
04102	2 00001	4	4	04070		TIX	F,4,1		
04103	0500	00	0	73232		CLA	G	L-377677 777677	
04104	0601	00	0	73227		STO	CPY		
04105	2 00001	1	1	04067		TIX	BIG+1,1,1		
04106	0074	00	4	06275		TSX	OK,4		
04107	0020	00	0	04062		TRA	BIG-4		
04110	314663606060					BCD	1IOT		
04111	0760	00	0	00005		IOT		TEST I/O CHECK TGR	
04112	0020	00	0	04114		TRA	*+2	ON-ERROR	
04113	0020	00	0	04116		TRA	*+3	OK-OFF	
04114	0074	00	4	06267		TSX	ERROR-1,4		
04115	-3 00000	4	4	04111		TXL	*-4,4		
04116	-0520	00	0	73011		NZT	TPCHA		
04117	0020	00	0	04151		TRA	EFP-16		
04120	0020	00	0	04122		TRA	*+2		
04121	632526216060					BCD	1TEFA		
04122	0060	00	0	04122		TCOA	*		
04123	0030	00	0	04125		TEFA	*+2	SHOULD NOT BE ON	
04124	0020	00	0	04126		TRA	*+2	OK	
04125	0074	00	4	06267		TSX	ERROR-1,4		
04126	-3 00000	4	4	04123		TXL	*-3,4		
04127	0774	00	1	00400		AXT	256,1		
04130	0774	00	2	00000		AXT	0,2		
04131	0500	00	0	72017		CLA	ONE		
04132	0601	00	0	06343		STO	RECNO	SET RECNO CONSTAN	
04133	0754	00	1	00000		PXA	0,1		
04134	0400	00	0	72017		ADD	ONE		
04135	0601	00	0	06342		STO	WDNO	SET WORD NO CONSTANT	
04136	0500	00	1	74353		CLA	RDFLD+256,1	WORD READ	
04137	0560	00	1	73753		LDQ	WRFLD+256,1	CORRECT WORD	
04140	0340	00	1	73753		CAS	WRFLD+256,1		
04141	0020	00	0	04143		TRA	*+2	ERROR	
04142	0020	00	0	04145		TRA	*+3	OK	
04143	0074	00	4	06266		TSX	ERROR-2,4		
04144	0761	00	0	03763		NOP	JACK+5		
04145	2 00001	1	1	04136		TIX	*-7,1,1		
04146	0074	00	4	06275		TSX	OK,4		
04147	0020	00	0	03753		TRA	CRT+3		
04150	0761	00	0	00000		NOP			

04151 0760 00 0 00163       SWT 3  
04152 0020 00 0 04154       TRA \*+2  
04153 0020 00 0 04157       TRA \*+4

\* PRINT --

\*\* 00000 CRT-ALL DISPLAYS-SECTION 6 COMPLETE

04154 0766 00 0 01361       WPRA               PRINT SECTION COMPLETE  
04155 0760 00 0 01363       SPRA 3  
04156 0540 00 0 77761       RCHA SECTN+5

04157 0500 00 0 72375       CLA TPCNT  
04160 0402 00 0 72017       SUB ONE  
04161 -0100 00 0 04167       TNZ \*+6

04162 0074 00 4 05545       TSX IORST,4  
04163 0106 14 0 10574       HTR BCDTA,0,BCDF+2  
04164 0074 00 4 05545       TSX IORST,4  
04165 0040 66 0 00157       HTR STKY,0,BIG  
04166 0020 00 0 04171       TRA \*+3  
04167 0601 00 0 72375       STO TPCNT  
04170 0074 00 4 05543       TSX SBCNT,4       TO REDUCE COUNT

04171 0760 00 0 00166   EFP       SWT 6  
04172 0020 00 0 04176       TRA \*+4  
04173 0074 00 4 05544       TSX CTX,4  
04174 0106 14 0 10574       HTR BCDTA,0,BCDF+2  
04175 0020 00 0 00152       TRA STKY-5  
04176 0074 00 4 05545       TSX IORST,4  
04177 0041 71 0 00157       HTR STKY,0,EFP

04200 0762 00 0 01321       RCDA  
04201 0540 00 0 10614       RCHA OMY  
04202 0544 00 0 00000       LCHA 0  
04203 0020 00 0 00001       TRA 1

00152                   ORG BEGN+6  
 \*TEST MULTI-CHANNEL INCLUDING MAIN FRAME ,TAPE  
 \*AND CARD MACHINES

00152	0020 00 0 00154		TRA	*+2	
00153	634665606060		BCD	1TOV	TEST TRANSFER ON ACC OVFL
00154	0140 00 0 00155	TOV	TOV	*+1	TURN OFF OVERFLOW TGR.
00155	0140 00 0 00157		TOV	*+2	ERROR-TGR DID NOT TURN OFF
00156	0020 00 0 00161		TRA	*+3	OK
00157	0074 00 4 06267		TSX	ERROR-1,4	
00160	0761 00 0 00154		NOP	TOV	
00161	0500 00 0 71566		CLA	ONES	L ALL ONES
00162	0767 00 0 00003		ALS	3	SHOULD OVFL
00163	0140 00 0 00170		TOV	*+5	OK-OVFL. TGR. ON
00164	0074 00 4 06267		TSX	ERROR-1,4	
00165	0761 00 0 00154		NOP	TOV	
00166	0020 00 0 00170		TRA	*+2	
00167	637125606060		BCD	1TZE	TEST TRANSFER ON ZERO
00170	0500 00 0 72016	TZE	CLA	ZERO	L 0
00171	0100 00 0 00174		TZE	*+3	SHOULD TRANSFER
00172	0074 00 4 06267		TSX	ERROR-1,4	
00173	0761 00 0 00170		NOP	TZE	
00174	0500 00 0 00154		CLA	TOV	ANY NON-ZERO LOCATION
00175	0100 00 0 00177		TZE	*+2	
00176	0020 00 0 00201		TRA	*+3	OK SHOULD NOT TRANSFER
00177	0074 00 4 06267		TSX	ERROR-1,4	
00200	0761 00 0 00170		NOP	TZE	
00201	0500 00 0 72366		CLA	RSET	POST
00202	0601 00 0 00000		STO	0	RESTART

\*WRITE PRINTER AND WRITE TAPE DURING MF OPERATION

00203	0074 00 4 05544	TX	TSX	CTX,4	
00204	0012 65 0 00203		HTR	TX,0,TXA	
00205	-0520 00 0 73022		NZT	TPCHB	TEST FOR TAPE CHANNEL B
00206	0020 00 0 00212		TRA	*+4	NO
00207	-0760 00 0 02000		ETTB		
00210	0772 00 0 02200		REWB		
00211	0766 00 0 02220		WTBB		
00212	-0520 00 0 73023		NZT	TPCHD	TEST FOR TAPE CHANNEL D
00213	0020 00 0 00217		TRA	*+4	NO
00214	-0760 00 0 04000		ETTD		
00215	0772 00 0 04200		REWD		



00216	0766	00	0	04220	WTBD	
00217	-0520	00	0	73024	NZT TPCHF	TEST FOR TAPE CHANNEL F
00220	0020	00	0	00224	TRA *+4	NO
00221	-0760	00	0	06000	ETTF	
00222	0772	00	0	06200	REWF	
00223	0766	00	0	06220	WTBF	
						THE APPROX.
						TIME BETWEEN SELECT
						AND RCH IS 6 MS
00224	0074	00	2	72327	TSX SHIFT,2	TO SHIFT PRINT IMAGE
00225	-0520	00	0	73022	NZT TPCHB	TEST FOR TAPE CHANNEL B
00226	0020	00	0	00230	TRA *+2	NO
00227	-0540	00	0	71446	RCHB SHIMG+3	S TGR ON-WRD CNT 400
00230	-0520	00	0	73023	NZT TPCHD	TEST FOR TAPE-CHAN. D
00231	0020	00	0	00233	TRA *+2	
00232	-0541	00	0	71446	RCHD SHIMG+3	S TGR ON-WRD CNT 400
00233	-0520	00	0	73024	NZT TPCHF	TEST FOR TAPE-CHAN. F
00234	0020	00	0	00236	TRA *+2	
00235	-0542	00	0	71446	RCHF SHIMG+3	S TGR ON-WRD CNT 400
00236	0020	00	0	00240	TRA *+2	
00237	314663606060				BCD 1IOT	
00240	0760	00	0	00005	IOT	
00241	0020	00	0	00243	TRA *+2	ERROR
00242	0020	00	0	00245	TRA *+3	OK
00243	0074	00	4	06267	TSX ERROR-1,4	
00244	-3	00000	0	00240	TXL *-4	
00245	-0520	00	0	73007	NZT PRCHA	TEST FOR PRINTER-CHAN. A
00246	0020	00	0	00250	TRA *+2	NO
00247	0766	00	0	01361	WPRA	
00250	-0520	00	0	73013	NZT PRCHC	TEST FOR PRINTER-CHAN. C
00251	0020	00	0	00253	TRA *+2	NO
00252	0766	00	0	03361	WPRC	
00253	-0520	00	0	73017	NZT PRCHE	TEST FOR PRINTER-CHAN. E
00254	0020	00	0	00256	TRA *+2	NO
00255	0766	00	0	05361	WPRE	
00256	0020	00	0	00260	TRA *+2	
00257	214362606060				BCD 1ALS	TEST ACC LEFT SHIFT
00260	0774	00	1	04061	AXT 2097,1	THE APPROX.
00261	2	00001	1	00261	TIX *,1,1	TIME BETWEEN SELECT
						AND RCH IS 58MS

00262	0534	00	1	71437	ALS	LXA THSVN,1	L ADDR 37
00263	0500	00	0	71566		CLA ONES	L ALL ONES
00264	0767	00	0	00001		ALS 1	
00265	0140	00	0	00270		TOV *+3	SHOULD TRANSFER
00266	0074	00	4	06267		TSX ERROR-1,4	OVFL TGR WAS NOT TURNED ON
00267	0761	00	0	00260		NOP ALS-2	LK AT SYSMTES PAGE 2.06.01
00270	0100	00	0	00272		TZE *+2	
00271	0020	00	0	00274		TRA *+3	OK-
00272	0074	00	4	06267		TSX ERROR-1,4	ERROR-ACC WAS CLEARED
00273	0761	00	0	00260		NOP ALS-2	
00274	-0760	00	0	00001		PBT	
00275	0020	00	0	00277		TRA *+2	ERROR
00276	0020	00	0	00301		TRA *+3	OK
00277	0074	00	4	06267		TSX ERROR-1,4	ENTRY HERE MEANS A BIT
00300	0761	00	0	00260		NOP ALS-2	WAS NOT SHIFTED INTO P
00301	2 00001	1	1	00264		TIX ALS+2,1,1	LOOP 37 TIMES
00302	-0520	00	0	73007		NZT PRCHA	TEST FOR CHAN A
00303	0020	00	0	00305		TRA *+2	NO
00304	0540	00	0	71443		RCHA SHIMG	S TGR ON-WRD CNT 30
00305	-0520	00	0	73013		NZT PRCHC	TEST FOR CHAN C
00306	0020	00	0	00310		TRA *+2	NO
00307	0541	00	0	71443		RCHC SHIMG	S TGR ON-WRD CNT 30
00310	-0520	00	0	73017		NZT PRCHE	TEST FOR CHAN E
00311	0020	00	0	00313		TRA *+2	NO
00312	0542	00	0	71443		RCHE SHIMG	S TGR ON-WRD CNT 30
00313	0020	00	0	00315		TRA *+2	NO
00314	314663606060					BCD 1IOT	
00315	0760	00	0	00005		IOT	TEST IOT TGR
00316	0020	00	0	00320		TRA *+2	ERROR-HERE MIGHT INDICATE THAT THE TIMING BETWEEN SELECT AND RESET CHANNEL IS TOO SHORT
00317	0020	00	0	00322		TRA *+3	
00320	0074	00	4	06267		TSX ERROR-1,4	
00321	-3 00000	4	0	00315		TXL *-4,4,0	
00322	0020	00	0	00324		TRA *+2	
00323	212424606060					BCD 1ADD	LONG ADDER TEST
00324	-0534	00	2	71330	ADD	LXD DELAY,2	L7777
00325	0500	00	2	07777		CLA 4095,2	
00326	0760	00	0	00006		COM	
00327	0400	00	2	07777		ADD 4095,2	
00330	0140	00	0	00331		TOV *+1	TURN OFF OVFL TGR
00331	0120	00	0	00341		TPL PLUS	
00332	-0120	00	0	00335		TMI *+3	
00333	0074	00	4	06267		TSX ERROR-1,4	MAY ENTER HERE IF COMB. OF
00334	0020	00	0	00324		TRA ADD	TPL AND TMI FOULS UP

00335	0402	00	0	72017		SUB ONE	SIGN MINUS-RESULT SHBE ZERO
00336	0100	00	0	00345		TZE OVFL	
00337	0074	00	4	06267		TSX ERROR-1,4	ERROR HERE MAY INDICATE
00340	0020	00	0	00324		TRA ADD	FAILURE TO RE-COMPLEMENT AFTER Q CARRY
00341	0400	00	0	72017	PLUS	ADD ONE	
00342	0100	00	0	00345		TZE OVFL	
00343	0074	00	4	06267		TSX ERROR-1,4	ERROR HERE MAY INDICATE
00344	0020	00	0	00324		TRA ADD	FAILURE TO RECOMPLEMENT AFTER Q CARRY
00345	-0140	00	0	00354	OVFL	TNO *+7	
00346	0140	00	0	00346		TOV *+0	
00347	0500	00	2	07777		CLA 4095,2	
00350	0340	00	2	07777		CAS 4095,2	
00351	0020	00	0	00362		TRA *+9	ERROR-MEMORY LESS
00352	0020	00	0	00370		TRA LOOP	OK
00353	0020	00	0	00365		TRA *+10	ERROR-MEMORY HIGH
00354	0074	00	4	06267		TSX ERROR-1,4	ERROR HERE MAY MEAN OVFL
00355	0020	00	0	00324		TRA ADD	TGR WAS NOT TURNED ON.
00356	0020	00	0	00347		TRA OVFL+2	
00357	0074	00	4	06267		TSX ERROR-1,4	TNO DID NOT TURN TRIGGER
00360	0020	00	0	00324		TRA ADD	OFF
00361	0020	00	0	00347		TRA OVFL+2	
00362	0074	00	4	06267		TSX ERROR-1,4	
00363	0020	00	0	00324		TRA ADD	
00364	0020	00	0	00347		TRA OVFL+2	
00365	0074	00	4	06267		TSX ERROR-1,4	
00366	0020	00	0	00324		TRA ADD	
00367	0020	00	0	00347		TRA OVFL+2	
00370	2	00001	2	00325	LOOP	TIX ADD+1,2,1	
00371	0074	00	4	06344		TSX RDNCK,4	TEST FOR RDNCY-WRITING
00372	0761	00	0	00740		NOP RDCKT	
00373	0074	00	2	72327		TSX SHIFT,2	SHIFT PRINT IMAGE
00374	0074	00	4	06275		TSX OK,4	
00375	0020	00	0	00205		TRA TX+2	
00376	0761	00	0	00000		NOP	
00377	0760	00	0	00163		SWT 3	
00400	0020	00	0	00402		TRA *+2	
00401	0020	00	0	00405		TRA *+4	

\* PRINT --

\*\* 00000 WRITE TAPE AND WRITE PRINTER-SECTION 7 COMPLETE

00402	0766	00	0	01361		WPRA	PRINT SECTION COMPLETE
00403	0760	00	0	01363		SPRA 3	

00404	0540	00	0	77762	RCHA SECTN+6
00405	0020	00	0	00407	TRA *+2

\*READ TAPE AND READ PRINTER DURING MF OPERATION

00406	516322606060		BCD 1RTB	
00407	-0520 00 0 73022		NZT TPCHB	TEST FOR TAPE CHAN. B
00410	0020 00 0 00412		TRA *+2	NO
00411	0764 00 0 02200	UGO	BSRB	BACKSPACE OVER 400 WRD REC
00412	-0520 00 0 73023		NZT TPCHD	TEST FOR TAPE CHAN. D
00413	0020 00 0 00415		TRA *+2	NO
00414	0764 00 0 04200		BSRD	BACKSPACE OVER 400 WRD REC
00415	-0520 00 0 73024		NZT TPCHF	TEST FOR TAPE CHAN. F
00416	0020 00 0 00420		TRA *+2	NO
00417	0764 00 0 06200		BSRF	BACKSPACE OVER 400 WRD REC
00420	-0520 00 0 73022		NZT TPCHB	TEST FOR TAPE CHAN. B
00421	0020 00 0 00424		TRA *+3	NO
00422	0762 00 0 02220		RTBB	
00423	-0540 00 0 71451		RCHB SHIMG+6	NO TGRS ON-WRD CNT 400
00424	-0520 00 0 73023		NZT TPCHD	TEST FOR TAPE CHAN. D
00425	0020 00 0 00430		TRA *+3	NO
00426	0762 00 0 04220		RTBD	
00427	-0541 00 0 73025		RCHD SHI-1	NO INDS ON-WC 400
00430	-0520 00 0 73024		NZT TPCHF	TEST FOR TAPE CHAN. F
00431	0020 00 0 00434		TRA *+3	NO
00432	0762 00 0 06220		RTBF	
00433	-0542 00 0 73026		RCHF SHI	NO INDS ON-WC 400
00434	-0520 00 0 73007		NZT PRCHA	TEST FOR PRINTER CHAN A
00435	0020 00 0 00440		TRA *+3	NO
00436	0762 00 0 01361		RPRA	SELECT PRINTER FOR READ
00437	0540 00 0 72552		RCHA LOST	S IND ON
00440	-0520 00 0 73013		NZT PRCHC	TEST FOR PRINTER CHAN C
00441	0020 00 0 00444		TRA *+3	NO
00442	0762 00 0 03361		RPRC	
00443	0541 00 0 72564		RCHC CAUSE	S IND ON
00444	-0520 00 0 73017		NZT PRCHE	TEST FOR PRINTER CHAN E
00445	0020 00 0 00450		TRA *+3	NO
00446	0762 00 0 05361		RPRE	
00447	0542 00 0 72576		RCHE XCEL	S IND ON
00450	0020 00 0 00452		TRA *+2	

00451	313121606060	BCD 11IA	TEST-INVERT INDICATORS FROM ADDRESS
00452	-0500 00 0 71566	CAL ONES	L ALL ONES
00453	0044 00 0 00000	PAI	ALL ONES IN INDICATORS
00454	0041 00 0 00000	IIA	INVERT
00455	-0046 00 0 00000	PIA	SHOULD BE ZERO HERE
00456	0100 00 0 00460	TZE *+2	OK.
00457	0074 00 4 06270	TSX ERROR,4	INDICATORS DID NOT INVERT
00460	0761 00 0 00452	NOP *-6	
00461	0020 00 0 00463	TRA *+2	
00462	313151606060	BCD 1IIR	RIPPLE TEST
00463	0500 00 0 71325	CLA IIR	L IIR INSTRUCTION
00464	-0501 00 0 71327	ORA BIT35	L ONE IN POSITION 35
00465	0601 00 0 00472	STO *+5	
00466	-0534 00 1 71326	LXD CO22,1	L +22
00467	0500 00 0 71327	CLA BIT35	L+1
00470	0601 00 0 71321	STO SAVE1	SAVE ACC
00471	0441 00 0 71321	LDI SAVE1	TURN ON IND. BEING TESTED
00472	0051 00 000001	IIR 1	TURN OFF IND. BEING TESTED
00473	-0046 00 0 00000	PIA	PLACE IND. IN ACC.
00474	0100 00 0 00477	TZE *+3	AND TEST
00475	0074 00 4 06267	TSX ERROR-1,4	
00476	0020 00 0 00463	TRA *-11	REPEAT SW {1 DOWN
00477	0500 00 0 71321	CLA SAVE1	BRING IN BIT PREV. TESTED
00500	0767 00 0 00001	ALS 1	
00501	-0501 00 0 71325	ORA IIR	PLACE BIT IN IIR INSTR.
00502	0601 00 0 00472	STO *-8	
00503	-0320 00 0 71324	ANA ADDR	L+777777
00504	2 00001 1 00470	TIX *-12,1,1	RETURN TO TEST ALL RT HALF IND. POSITIONS
00505	0020 00 0 00507	TRA *+2	
00506	313143606060	BCD 1IIL	RIPPLE TEST LEFT HALF
00507	0500 00 0 71323	CLA IIL	L IIL INSTRUCTION
00510	-0501 00 0 71327	ORA BIT35	L 1 IN POSITION 35
00511	0601 00 0 00521	STO *+8	
00512	0500 00 0 71327	CLA BIT35	L+1
00513	0601 00 0 71321	STO SAVE1	SAVE ACC
00514	-0534 00 1 71326	LXD CO22,1	L+22
00515	0500 00 0 72720	CLA 400K	
00516	0767 00 0 00001	ALS 1	
00517	0602 00 0 71322	SLW SAVE2	
00520	0044 00 0 00000	PAI	
00521	-0051 00 000001	IIL 1	
00522	-0046 00 0 00000	PIA	BRING IN IND TO BE TESTED AND CHECK
00523	0100 00 0 00526	TZE *+3	OK
00524	0074 00 4 06267	TSX ERROR-1,4	
00525	0020 00 0 00507	TRA *-14	

00526	0500	00	0	71321	CLA SAVE1	ADJUST
00527	0767	00	0	00001	ALS 1	F
00530	0601	00	0	71321	STO SAVE1	FIELD
00531	-0501	00	0	71323	ORA IIL	IIL INSTRUCTION
00532	0602	00	0	00521	SLW *-9	ADJUST IIL INSTRUCTION
00533	-0500	00	0	71322	CAL SAVE2	
00534	2	00001	1	00516	TIX *-14,1,1	RETURN OT TEST ALL POS. LEFT HALF INDS.
00535	0074	00	4	06344	TSX RDNCK,4	TEST RDNCY-READING
00536	0761	00	0	00407	NOP UGO-2	
00537	0020	00	0	00541	TRA *+2	CONTINUE
00540	314663606060				BCD 1IOT	
00541	0760	00	0	00005	IOT	
00542	0020	00	0	00544	TRA *+2	ERROR HERE MIGHT INDICATE THAT THE PRINTER DROPPED OUT OF SELECT, OR THE CONTROL WORD INDS DID NOT OPERATE CORRECTLY
00543	0020	00	0	00546	TRA *+3	OK
00544	0074	00	4	06267	TSX ERROR-1,4	
00545	-3	00000	4	00541	TXL *-4,4,0	DO NOT REPEAT
00546	0074	00	4	06275	TSX OK,4	
00547	0020	00	0	00407	TRA UGO-2	
00550	0761	00	0	00000	NOP	

\*WRITE TAPE ALL CHANNELS DURING MF OPERATION

00551	-0520	00	0	73011	HOPE NZT TPCHA	TEST FOR TAPE CHAN A
00552	0020	00	0	00557	TRA *+5	NO
00553	-0760	00	0	01000	ETTA	
00554	0772	00	0	01200	REWA	
00555	0766	00	0	01220	WTBA	
00556	0540	00	0	71457	RCHA WTBI	TGR 1 ON-WRD CNT 40
00557	-0520	00	0	73022	NZT TPCHB	TEST FOR TAPE CHAN B
00560	0020	00	0	00565	TRA *+5	NO
00561	-0760	00	0	02000	ETTB	
00562	0772	00	0	02200	REWB	
00563	0766	00	0	02220	WTBB	
00564	-0540	00	0	71457	RCHB WTBI	TGR 1 ON-WRD CNT 40
00565	-0520	00	0	73015	NZT TPCHC	TEST FOR TAPE CHAN B
00566	0020	00	0	00573	TRA *+5	NO
00567	-0760	00	0	03000	ETTC	
00570	0772	00	0	03200	REWC	
00571	0766	00	0	03220	WTBC	
00572	0541	00	0	71457	RCHC WTBI	TGR 1 ON-WRD CNT 40

00573	-0520	00	0	73023	NZT TPCHD	TEST FOR TAPE CHAN C
00574	0020	00	0	00601	TRA *+5	NO
00575	-0760	00	0	04000	ETTD	
00576	0772	00	0	04200	REWD	
00577	0766	00	0	04220	WTBD	
00600	-0541	00	0	71457	RCHD WTBI	TGR 1 ON-WRD CNT 40
00601	-0520	00	0	73021	NZT TPCHE	TEST FOR TAPE CHAN E
00602	0020	00	0	00607	TRA *+5	NO
00603	-0760	00	0	05000	ETTE	
00604	0772	00	0	05200	REWE	
00605	0766	00	0	05220	WTBE	
00606	0542	00	0	71457	RCHE WTBI	TGR 1 ON-WRD CNT 40
00607	-0520	00	0	73024	NZT TPCHF	TEST FOR TAPE CHAN F
00610	0020	00	0	00615	TRA *+5	NO
00611	-0760	00	0	06000	ETTF	
00612	0772	00	0	06200	REWF	
00613	0766	00	0	06220	WTBF	
00614	-0542	00	0	71457	RCHF WTBI	TGR 1 ON-WRD CNT 40
00615	0774	00	1	00400	VILE AXT 256,1	L +400
00616	0534	00	2	72016	LXA ZERO,2	L+0
00617	0500	00	0	71327	CLA BIT35	L+1
00620	0601	00	0	06343	STO RECNO	SET REC NO CONSTANT
00621	0754	00	1	00000	PXA 0,1	
00622	0400	00	0	71327	ADD BIT35	L+1
00623	0601	00	0	06342	STO WDNO	SET WORD NO CONSTANT
*COMPARISION-READ TAPE AND READ PRINTER SECTION						
00624	-0520	00	0	73022	NZT TPCHB	TAPE-CHAN B
00625	0020	00	0	00636	TRA *+9	NO
00626	0500	00	1	74353	CLA RDFLD+256,1	WORD READ
00627	0560	00	1	73753	LDQ WRFLD+256,1	CORRECT WORD
00630	0340	00	1	73753	CAS WRFLD+256,1	
00631	0020	00	0	00633	TRA *+2	ERROR
00632	0020	00	0	00635	TRA *+3	OK-EQUAL
00633	0074	00	4	06266	TSX ERROR-2,4	
00634	0761	00	0	10577	NOP BCDTB+1	
00635	2 00001	1	1	00626	TIX *-7,1,1	WORDS HAVE BEEN CHECKED
00636	-0520	00	0	73023	NZT TPCHD	TAPE-CHAN D
00637	0020	00	0	00651	TRA *+10	NO
00640	0774	00	1	00400	AXT 256,1	
00641	0500	00	1	74753	CLA RFCD+256,1	WORD READ
00642	0560	00	1	73753	LDQ WRFLD+256,1	CORRECT WORD
00643	0340	00	1	73753	CAS WRFLD+256,1	
00644	0020	00	0	00646	TRA *+2	ERROR



00645	0020	00	0	00650	TRA	*+3	OK-EQUAL
00646	0074	00	4	06266	TSX	ERROR-2,4	
00647	0761	00	0	10603	NOP	BCDTD+1	
00650	2	00001	1	00641	TIX	*-7,1,1	WORDS HAVE BEEN CHECKED
00651	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
00652	0020	00	0	00664	TRA	*+10	NO
00653	0774	00	1	00400	AXT	256,1	
00654	0500	00	1	75353	CLA	RFEF+256,1	WORD READ
00655	0560	00	1	73753	LDQ	WRFLD+256,1	CORRECT WORD
00656	0340	00	1	73753	CAS	WRFLD+256,1	
00657	0020	00	0	00661	TRA	*+2	ERROR
00660	0020	00	0	00663	TRA	*+3	OK-EQUAL
00661	0074	00	4	06266	TSX	ERROR-2,4	
00662	0761	00	0	10607	NOP	BCDTF+1	
00663	2	00001	1	00654	TIX	*-7,1,1	WORDS HAVE BEEN CHECKED
00664	0074	00	2	10475	TSX	ECHOS,2	OUT TO FORM ECHO IMAGE
00665	0074	00	2	10522	TSX	ECHCS,2	
00666	0074	00	2	10547	TSX	ECHES,2	
00667	0534	00	0	72016	LXA	ZERO	L+0
00670	-0534	00	1	71326	LXD	CO22,1	L+22
00671	0500	00	0	72017	CLA	ONE	L+1
00672	0601	00	0	06343	STO	RECNO	SET RECNO CONSTANT
00673	0754	00	1	00000	PXA	0,1	
00674	0400	00	0	71327	ADD	BIT35	L+1
00675	0601	00	0	06342	STO	WDNO	SET WD NO CONSTANT
00676	-0520	00	0	73007	NZT	PRCHA	TEST FOR PRINTER A
00677	0020	00	0	00710	TRA	*+9	
00700	0500	00	1	72011	WASTE	CLA	ECHO+18,1
00701	0560	00	1	71507	LDQ	WRIT2+18,1	WORD READ
00702	0340	00	1	71507	CAS	WRIT2+18,1	CORRECT WORD
00703	0020	00	0	00705	TRA	*+2	ERROR
00704	0020	00	0	00707	TRA	*+3	OK-EQUAL
00705	0074	00	4	06266	TSX	ERROR-2,4	COMPARISON ERROR
00706	0761	00	0	71640	NOP	PREA+1	
00707	2	00001	1	00700	TIX	WASTE,1,1	RETURN TO CHECK ALL WORDS
00710	-0520	00	0	73013	NZT	PRCHC	TEST FOR PRINTER C
00711	0020	00	0	00723	TRA	*+10	
00712	0774	00	1	00022	AXT	18,1	
00713	0500	00	1	73142	CLA	ECHOC+18,1	WORD READ
00714	0560	00	1	71507	LDQ	WRIT2+18,1	CORRECT WORD
00715	0340	00	1	71507	CAS	WRIT2+18,1	
00716	0020	00	0	00720	TRA	*+2	ERROR
00717	0020	00	0	00722	TRA	*+3	OK-EQUAL
00720	0074	00	4	06266	TSX	ERROR-2,4	COMPARISON ERROR
00721	0761	00	0	71641	NOP	PREC+1	
00722	2	00001	1	00713	TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
00723	-0520	00	0	73017	NZT	PRCHE	TEST FOR PRINTER E

00724	0020	00	0	00736		TRA	*+10	
00725	0774	00	1	00022		AXT	18,1	
00726	0500	00	1	73170		CLA	ECHOE+18,1	WORD READ
00727	0560	00	1	71507		LDQ	WRIT2+18,1	CORRECT WORD
00730	0340	00	1	71507		CAS	WRIT2+18,1	
00731	0020	00	0	00733		TRA	*+2	ERROR
00732	0020	00	0	00735		TRA	*+3	OK-EQUAL
00733	0074	00	4	06266		TSX	ERROR-2,4	COMPARISON ERROR
00734	0761	00	0	71641		NOP	PREC+1	
00735	2	00001	1	00726		TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
00736	0020	00	0	00740		TRA	*+2	CONTINUE
00737	666322606060					BCD	1WTB	
00740	0074	00	4	06344	RDCKT	TSX	RDNCK,4	CHECK RDNCY-WRITING
00741	0761	00	0	00740		NOP	*-1	
00742	0074	00	4	06275		TSX	OK,4	
00743	0020	00	0	00551		TRA	HOPE	
00744	0761	00	0	00000		NOP		
00745	0760	00	0	00163		SWT	3	
00746	0020	00	0	00750		TRA	*+2	
00747	0020	00	0	00753		TRA	*+4	

\* PRINT --

\*\* 00000 READ TAPE AND READ PRINTER-SECTION 8 COMPLETE

00750	0766	00	0	01361		WPRA		PRINT SECTION COMPLETE
00751	0760	00	0	01363		SPRA	3	
00752	0540	00	0	77763		RCHA	SECTN+7	

00753	0774	00	1	00006	XTRA	AXT 6,1	6 INTO XRA
00754	-0520	00	0	73022		NZT TPCHB	TEST FOR TAPE-CHAN B
00755	0020	00	0	00757		TRA *+2	NO
00756	0764	00	0	02200		BSRB	BACKSPACE OVER
00757	-0520	00	0	73011		NZT TPCHA	TEST FOR TAPE-CHAN A
00760	0020	00	0	00762		TRA *+2	NO
00761	0764	00	0	01200		BSRA	BACKSPACE OVER
00762	-0520	00	0	73015		NZT TPCHC	TEST FOR TAPE-CHAN C
00763	0020	00	0	00765		TRA *+2	NO
00764	0764	00	0	03200		BSRC	
00765	-0520	00	0	73023		NZT TPCHD	TEST FOR TAPE-CHAN D
00766	0020	00	0	00770		TRA *+2	NO
00767	0764	00	0	04200		BSRD	BACKSPACE OVER
00770	-0520	00	0	73021		NZT TPCHE	TEST FOR TAPE-CHAN E
00771	0020	00	0	00773		TRA *+2	NO
00772	0764	00	0	05200		BSRE	BACKSPACE OVER
00773	-0520	00	0	73024		NZT TPCHF	TEST FOR TAPE-CHAN F
00774	0020	00	0	00776		TRA *+2	NO
00775	0764	00	0	06200		BSRF	BACKSPACE OVER
00776	2	00001	1	00754		TIX XTRA+1,1,1	

\*CLEAR FIRST RECORD AREAS

00777	0774	00	1	00040		AXT 32,1	40 INTO XRA	
01000	0600	00	1	74013		STZ RDFLD+32,1	CLEAR RDFLD	
01001	0600	00	1	74413		STZ RFCD+32,1		
01002	0600	00	1	75013		STZ RFEF+32,1		
01003	2	00001	1	01000		TIX *-3,1,1	FIRST REC AREA	
01004	0760	00	0	00163		SWT 3		
01005	0020	00	0	01007		TRA *+2		
01006	0020	00	0	01012		TRA *+4		
* PRINT --								
**	00000	WRITE TAPE ALL CHANNELS-SECTION 9 COMPLETE						
01007	0766	00	0	01361		WPRA	PRINT SECTION COMPLETE	
01010	0760	00	0	01363		SPRA 3		
01011	0540	00	0	77764		RCHA SECTN+8		

\*READ TAPE AND WRITE PUNCH DURING MF OPERATION

01012	-0520	00	0	73022	NZT TPCHB	TEST FOR TAPE-CHAN B
01013	0020	00	0	01016	TRA *+3	NO
01014	0762	00	0	02220	RTBB	
01015	-0540	00	0	71441	RCHB RDTP	TGR 1 ON-SHOULD NOT TRANSMIT FIRST RECORD
01016	-0520	00	0	73023	NZT TPCHD	TEST FOR TAPE-CHAN D
01017	0020	00	0	01022	TRA *+3	NO
01020	0762	00	0	04220	RTBD	
01021	-0541	00	0	73027	RCHD RDTP1	IND 1 ON-SHOULD NOT TRANSMIT FIRST RECORD
01022	-0520	00	0	73024	NZT TPCHF	TEST FOR TAPE-CHAN F
01023	0020	00	0	01026	TRA *+3	NO
01024	0762	00	0	06220	RTBF	
01025	-0542	00	0	73031	RCHF RDTP2	IND 1 ON-SHOULD NOT TRANSMIT FIRST RECORD
01026	0074	00	2	72327	TSX SHIFT, 2	
01027	-0520	00	0	73010	NZT PUCHA	TEST FOR PUNCH CHAN A
01030	0020	00	0	01033	TRA *+3	NO
01031	0766	00	0	01341	WPUA	
01032	0540	00	0	71736	LACE RCHA SHIM	1 AND 2 TGRS ON-WRD CNT 30 NO LCH FOLLOWS SHOULD DISCONNECT AFTER ONE CARD HAS BEEN PUNCHED
01033	-0520	00	0	73014	NZT PUCHC	TEST FOR PUNCH CHAN C
01034	0020	00	0	01037	TRA *+3	NO
01035	0766	00	0	03341	WPUC	
01036	0541	00	0	71736	RCHC SHIM	1 AND 2 INDS ON-WRD CNT 30 NO LCH FOLLOWS SHOULD DISCONNECT AFTER ONE CARD HAS BEEN PUNCHED
01037	-0520	00	0	73020	NZT PUCHE	TEST FOR PUNCH CHAN E
01040	0020	00	0	01043	TRA *+3	NO
01041	0766	00	0	05341	WPUE	
01042	0542	00	0	71736	RCHE SHIM	1 AND 2 INDS ON-WRD CNT 30 NO LCH FOLLOWS SHOULD DISCONNECT AFTER ONE CARD HAS BEEN PUNCHED
01043	-0534	00	2	71446	LXD SHIMG+3, 2	L 400

01044	2	00001	2	01044		TIX * ,2,1	DELAY
01045	0020	00	0	01047		TRA *+2	
01046	637125603121					BCD 1TZE IA	TEST TZE DOUBLY INDIRECT ADDRESSED
01047	0500	00	0	71566		CLA ONES	L ALL ONES
01050	0402	00	0	71566		SUB ONES	L ALL ONES
01051	0100	60	0	01054		TZE* *+3	SHOULD TRANSFER
01052	0074	00	4	06270		TSX ERROR,4	FAILED TO TRANSFER
01053	0020	00	0	01047		TRA *-4	REPEAT
01054	0100	60	0	01057		TZE* *+3	SHOULD TRANSFER
01055	0074	00	4	06270		TSX ERROR,4	FAILED TO TRANSFER
01056	0020	00	0	01047		TRA *-7	ON SECOND IND. ADDR.
01057	0500	00	0	01070		CLA SUB	L IND ADDR. CLA
01060	0402	00	0	00000		SUB 0	LOC IF INDEXING FAILED
01061	0601	00	0	01120		STO RSLT	
01062	0500	00	0	01070		CLA SUB	L IND ADDR CLA
01063	0402	00	0	01074		SUB NOP	LOC IF IND. ADDR. FAILED
01064	0601	00	0	01117		STO RSLT1	
01065	0020	00	0	01070		TRA *+3	
01066	234321603121					BCD 1CLA IA	TEST CLA AND SUB INDLY
01067	626422603121	CLA				BCD 1SUB IA	ADDRESS AND INDEXED
01070	0500	60	2	01075	SUB	CLA* NOP+1,2	SHOULD BRING IN THIS LOC.
01071	0402	60	2	01075		SUB* NOP+1,2	
01072	0100	00	0	01134		TZE SUIN1+2	OK
01073	0020	00	0	01076		TRA *+3	ERROR-GO TO PIN POINT TROUBLE
01074	0761	00	0	01070	NOP	NOP SUB	DUMMY FOR IND. ADDR.
01075	+0000000000000					OCT 0	
01076	0500	60	2	01075		CLA* NOP+1,2	
01077	0560	00	0	01070		LDQ SUB	
01100	0340	00	0	00000		CAS 0	
01101	0020	00	0	01103		TRA *+2	OK
01102	0020	00	0	01121		TRA CLIND	ERROR
01103	0340	00	0	01074		CAS NOP	
01104	0020	00	0	01106		TRA *+2	OK
01105	0020	00	0	01124		TRA CLIN1	ERROR
01106	0402	60	2	01075		SUB* NOP+1,2	
01107	0560	00	0	72016		LDQ ZERO	CORRECT RESULT
01110	0340	00	0	01120		CAS RSLT	
01111	0020	00	0	01113		TRA *+2	OK
01112	0020	00	0	01127		TRA SUIND	ERROR
01113	0340	00	0	01117		CAS RSLT1	
01114	0020	00	0	01116		TRA *+2	OK
01115	0020	00	0	01132		TRA SUIN1	ERROR
01116	0020	00	0	01134		TRA SUIN1+2	CONTINUE
01117	+0000000000000	RSLT1				OCT 0	
01120	+0000000000000	RSLT				OCT 0	
01121	0074	00	4	06267	CLIND	TSX ERROR-1,4	ENTRY HERE WOULD MEAN

						INDEXING FAILURE DURING CLA INSTRUCTION
01122	0761	00	0	01067		NOP CLA
01123	0020	00	0	01134		TRA SUIN1+2
01124	0074	00	4	06267	CLIN1	TSX ERROR-1,4 ENTRY HERE WOULD MEAN
01125	0761	00	0	01067		NOP CLA IND. ADDRING FAILURE
01126	0020	00	0	01134		TRA SUIN1+2 DURING CLA INSTRUCTION
01127	0074	00	4	06267	SUIND	TSX ERROR-1,4 ENTRY HERE WOULD MEAN INDEXING FAILURE DURING SUB INSTRUCTION
01130	0761	00	0	01070		NOP SUB
01131	0020	00	0	01134		TRA SUIN1+2
01132	0074	00	4	06267	SUIN1	TSX ERROR-1,4 ENTRY HERE WOULD MEAN
01133	0761	00	0	01070		NOP SUB IND. ADDRESSING FAILURE DURING SUB INSTRUCTION
01134	0074	00	4	06344		TSX RDNCK,4 TEST RDNCY AFTER TAPE READ
01135	0761	00	0	00407		NOP UGO-2
01136	0020	00	0	01140		TRA *+2
01137	314663606060					BCD 1IOT TEST IOT FOR WPUA
01140	0760	00	0	00005		IOT
01141	0020	00	0	01143		TRA *+2 ERROR-SHOULD BE OFF
01142	0020	00	0	01145		TRA *+3 OK
01143	0074	00	4	06267		TSX ERROR-1,4
01144	-3	00000	4	01140		TXL *-4,4,0

\*COMPARISON FOR TAPE READ-READ TAPE AND WRITE PUNCH  
 \*SECTION-FIRST RECORD

01145	0500	00	0	00753	A	CLA XTRA	L ADDR 6
01146	0400	00	0	72017		ADD ONE	L+1
01147	0621	00	0	06343		STA RECNO	SET REC NO CONSTANT
01150	0500	00	0	01154		CLA *+4	L ADDR 32
01151	0400	00	0	72017		ADD ONE	L+1
01152	0621	00	0	06342		STA WDNO	SET WORD NO CONSTANT
01153	0774	00	2	00006		AXT 6,2	NO OF RECS
01154	0774	00	1	00040		AXT 32,1	NO OF WORDS
01155	-0520	00	0	73022		NZT TPCHB	TAPE-CHAN B
01156	0020	00	0	01167		TRA *+9	NO
01157	0500	00	1	74013		CLA RDFLD+32,1	WORD READ
01160	0560	00	0	72016		LDQ ZERO	SHOULD HAVE READ ALL ZEROS
01161	0340	00	0	72016		CAS ZERO	
01162	0020	00	0	01164		TRA *+2	ERROR
01163	0020	00	0	01166		TRA *+3	OK
01164	0074	00	4	06266		TSX ERROR-2,4	
01165	0761	00	0	10577		NOP BCDTB+1	
01166	2	00001	1	01157		TIX *-7,1,1	

01167	-0520	00	0	73023	NZT	TPCHD	TAPE-CHAN D
01170	0020	00	0	01202	TRA	*+10	NO
01171	0774	00	1	00040	AXT	32,1	NO OF WORDS
01172	0500	00	1	74413	CLA	RFCD+32,1	WORD READ
01173	0560	00	0	72016	LDQ	ZERO	SHOULD HAVE READ ALL ZEROS
01174	0340	00	0	72016	CAS	ZERO	
01175	0020	00	0	01177	TRA	*+2	ERROR
01176	0020	00	0	01201	TRA	*+3	OK
01177	0074	00	4	06266	TSX	ERROR-2,4	
01200	0761	00	0	10603	NOP	BCDTD+1	
01201	2 00001	1	1	01172	TIX	*-7,1,1	
01202	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
01203	0020	00	0	01215	TRA	*+10	NO
01204	0774	00	1	00040	AXT	32,1	NO OF WORDS
01205	0500	00	1	75013	CLA	RFEF+32,1	WORD READ
01206	0560	00	0	72016	LDQ	ZERO	SHOULD HAVE READ ALL ZEROS
01207	0340	00	0	72016	CAS	ZERO	
01210	0020	00	0	01212	TRA	*+2	ERROR
01211	0020	00	0	01214	TRA	*+3	OK
01212	0074	00	4	06266	TSX	ERROR-2,4	
01213	0761	00	0	10607	NOP	BCDTF+1	
01214	2 00001	1	1	01205	TIX	*-7,1,1	
01215	2 00001	2	2	01216	TIX	*+1,2,1	
01216	0074	00	4	06275	TSX	OK,4	
01217	0020	00	0	00753	TRA	XTRA	
01220	0761	00	0	00000	NOP		
01221	0760	00	0	00163	SWT	3	
01222	0020	00	0	01224	TRA	*+2	
01223	0020	00	0	01227	TRA	*+4	

\* PRINT --

**	00000	READ	TAPE	AND	WRITE	PUNCH-SECTION	10	COMPLETE
01224	0766	00	0	01361	WPRA	PRINT	SECTION	COMPLETE
01225	0760	00	0	01363	SPRA	3		
01226	0540	00	0	77765	RCHA	SECTN+9		

01227	-0520	00	0	73022		NZT TPCHB	TEST FOR TAPE CHAN B
01230	0020	00	0	01235		TRA *+5	NO
01231	-0760	00	0	02000	D	ETTB	
01232	0772	00	0	02200		REWB	
01233	0766	00	0	02220		WTBB	
01234	-0540	00	0	71562		RCHB TPCTL	NO TGRS ON-WRD CNT 400
01235	-0520	00	0	73023		NZT TPCHD	TEST FOR TAPE CHAN D
01236	0020	00	0	01243		TRA *+5	NO
01237	-0760	00	0	04000		ETTD	
01240	0772	00	0	04200		REWD	
01241	0766	00	0	04220		WTBD	
01242	-0541	00	0	71562		RCHD TPCTL	NO INDS ON-WRD CNT 400
01243	-0520	00	0	73024		NZT TPCHF	TEST FOR TAPE CHAN F
01244	0020	00	0	01251		TRA *+5	NO
01245	-0760	00	0	06000		ETTF	
01246	0772	00	0	06200		REWF	
01247	0766	00	0	06220		WTBF	
01250	-0542	00	0	71562		RCHF TPCTL	NO INDS ON-WRD CNT 400
01251	-0520	00	0	73011	TAB	NZT TPCHA	TEST FOR TAPE ON CHAN A
01252	0020	00	0	01255		TRA *+3	NO
01253	0762	00	0	01220		RTBA	
01254	0540	00	0	71441		RCHA RDTP	IND1 ON-SHD NOT TRANSMIT FIRST RECORD
01255	-0520	00	0	73015		NZT TPCHC	TEST FOR TAPE ON CHAN C
01256	0020	00	0	01261		TRA *+3	NO
01257	0762	00	0	03220		RTBC	
01260	0541	00	0	73027		RCHC RDTP1	IND 1 ON SHOULD NOT TRANSMIT FIRST RECORD
01261	-0520	00	0	73021		NZT TPCHE	TEST FOR TAPE ON CHAN E
01262	0020	00	0	01265		TRA *+3	NO
01263	0762	00	0	05220		RTBE	
01264	0542	00	0	73031		RCHE RDTP2	IND 1 ON SHOULD NOT TRANSMIT FIRST RECORD

\*COMPARISON-TAPE READ-READ TAPE AND  
 \*WRITE PUNCH SECTION-REMAINING RECORDS

01265	-0520	00	0	73022	TXA	NZT TPCHB	TEST FOR TAPE CHAN B
01266	0020	00	0	01300		TRA *+10	NO
01267	0774	00	1	00040		AXT 32,1	



01270	0500	00	1	74053	CLA	RDFLD+64,1	WORD READ
01271	0560	00	1	73453	LDQ	WRFLD+64,1	WORD GENERATED
01272	0340	00	1	73453	CAS	WRFLD+64,1	
01273	0020	00	0	01275	TRA	*+2	ERROR
01274	0020	00	0	01277	TRA	*+3	OK
01275	0074	00	4	06266	TSX	ERROR-2,4	
01276	0761	00	0	10577	NOP	BCDTB+1	
01277	2	00001	1	01270	TIX	*-7,1,1	RETURN TO TEST ALL WORDS
01300	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE CHAN D
01301	0020	00	0	01313	TRA	*+10	NO
01302	0774	00	1	00040	AXT	32,1	
01303	0500	00	1	74453	CLA	RFCD+64,1	WORD READ
01304	0560	00	1	73453	LDQ	WRFLD+64,1	WORD GENERATED
01305	0340	00	1	73453	CAS	WRFLD+64,1	
01306	0020	00	0	01310	TRA	*+2	ERROR
01307	0020	00	0	01312	TRA	*+3	OK
01310	0074	00	4	06266	TSX	ERROR-2,4	
01311	0761	00	0	10603	NOP	BCDTD+1	
01312	2	00001	1	01303	TIX	*-7,1,1	RETURN TO TEST ALL WORDS
01313	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE CHAN F
01314	0020	00	0	01326	TRA	*+10	NO
01315	0774	00	1	00040	AXT	32,1	
01316	0500	00	1	75053	CLA	RFEF+64,1	WORD READ
01317	0560	00	1	73453	LDQ	WRFLD+64,1	WORD GENERATED
01320	0340	00	1	73453	CAS	WRFLD+64,1	
01321	0020	00	0	01323	TRA	*+2	ERROR
01322	0020	00	0	01325	TRA	*+3	OK
01323	0074	00	4	06266	TSX	ERROR-2,4	
01324	0761	00	0	10607	NOP	BCDTF+1	
01325	2	00001	1	01316	TIX	*-7,1,1	
01326	2	00001	2	01327	TIX	*+1,2,1	DECREMENT RECORD NO
01327	-0520	00	0	73022	TPA1	NZT	TPCHB
01330	0020	00	0	01342	TRA	*+10	NO
01331	0774	00	1	00040	AXT	32,1	
01332	0500	00	1	74113	CLA	RDFLD+96,1	WORD READ
01333	0560	00	1	73513	LDQ	WRFLD+96,1	WORD GENERATED
01334	0340	00	1	73513	CAS	WRFLD+96,1	
01335	0020	00	0	01337	TRA	*+2	ERROR
01336	0020	00	0	01341	TRA	*+3	OK
01337	0074	00	4	06266	TSX	ERROR-2,4	
01340	0761	00	0	10577	NOP	BCDTB+1	
01341	2	00001	1	01332	TIX	*-7,1,1	RETURN TO TEST ALL WORDS
01342	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE CHAN D
01343	0020	00	0	01355	TRA	*+10	NO
01344	0774	00	1	00040	AXT	32,1	
01345	0500	00	1	74513	CLA	RFCD+96,1	WORD READ

01346	0560	00	1	73513	LDQ	WRFLD+96,1	WORD GENERATED	
01347	0340	00	1	73513	CAS	WRFLD+96,1		
01350	0020	00	0	01352	TRA	*+2	ERROR	
01351	0020	00	0	01354	TRA	*+3	OK	
01352	0074	00	4	06266	TSX	ERROR-2,4		
01353	0761	00	0	10603	NOP	BCDTD+1		
01354	2	00001	1	01345	TIX	*-7,1,1	RETURN TO TEST ALL WORDS	
01355	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE CHAN F	
01356	0020	00	0	01370	TRA	*+10	NO	
01357	0774	00	1	00040	AXT	32,1		
01360	0500	00	1	75113	CLA	RFEF+96,1	WORD READ	
01361	0560	00	1	73513	LDQ	WRFLD+96,1	WORD GENERATED	
01362	0340	00	1	73513	CAS	WRFLD+96,1		
01363	0020	00	0	01365	TRA	*+2	ERROR	
01364	0020	00	0	01367	TRA	*+3	OK	
01365	0074	00	4	06266	TSX	ERROR-2,4		
01366	0761	00	0	10607	NOP	BCDTF+1		
01367	2	00001	1	01360	TIX	*-7,1,1		
01370	2	00001	2	01371	TIX	*+1,2,1	DECREMENT RECORD NO.	
01371	0774	00	1	00140	AXT	96,1	140 INTO XRA	
01372	0754	00	1	00000	PXA	0,1		
01373	0400	00	0	72017	ADD	ONE	L+1	
01374	0601	00	0	06342	STO	WDNO	SET WORD NO CONSTANT	
01375	-0520	00	0	73022	TPA2	NZT	TPCHB	TEST FOR TAPE CHAN B
01376	0020	00	0	01407	TRA	*+9	NO	
01377	0500	00	1	74253	CLA	RDFLD+192,1	WORD READ	
01400	0560	00	1	73653	LDQ	WRFLD+192,1	WORD GENERATED	
01401	0340	00	1	73653	CAS	WRFLD+192,1		
01402	0020	00	0	01404	TRA	*+2	ERROR	
01403	0020	00	0	01406	TRA	*+3	OK	
01404	0074	00	4	06266	TSX	ERROR-2,4		
01405	0761	00	0	10577	NOP	BCDTB+1		
01406	2	00001	1	01377	TIX	*-7,1,1	RETURN TO TEST ALL WORDS	
01407	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE CHAN D	
01410	0020	00	0	01422	TRA	*+10	NO	
01411	0774	00	1	00140	AXT	96,1		
01412	0500	00	1	74653	CLA	RFCD+192,1	WORD READ	
01413	0560	00	1	73653	LDQ	WRFLD+192,1	WORD GENERATED	
01414	0340	00	1	73653	CAS	WRFLD+192,1		
01415	0020	00	0	01417	TRA	*+2	ERROR	
01416	0020	00	0	01421	TRA	*+3	OK	
01417	0074	00	4	06266	TSX	ERROR-2,4		
01420	0761	00	0	10603	NOP	BCDTD+1		
01421	2	00001	1	01412	TIX	*-7,1,1	RETURN TO TEST ALL WORDS	
01422	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE CHAN F	
01423	0020	00	0	01435	TRA	*+10	NO	
01424	0774	00	1	00140	AXT	96,1		

01425	0500	00	1	75253		CLA	RFEF+192,1	WORD READ	
01426	0560	00	1	73653		LDQ	WRFLD+192,1	WORD GENERATED	
01427	0340	00	1	73653		CAS	WRFLD+192,1		
01430	0020	00	0	01432		TRA	*+2	ERROR	
01431	0020	00	0	01434		TRA	*+3	OK	
01432	0074	00	4	06266		TSX	ERROR-2,4		
01433	0761	00	0	10607		NOP	BCDTF+1		
01434	2	00001	1	01425		TIX	*-7,1,1		
01435	2	00001	2	01436		TIX	*+1,2,1	DECREMENT RECORD NO.	
01436	0774	00	1	00040		AXT	32,1	40 INTO XRA	
01437	0754	00	1	00000		PXA	0,1		
01440	0400	00	0	72017		ADD	ONE	L+1	
01441	0601	00	0	06342		STO	WDNO	SET WORD NO CONSTANT	
01442	-0520	00	0	73022	TPA3	NZT	TPCHB	TEST FOR TAPE CHAN B	
01443	0020	00	0	01454		TRA	*+9	NO	
01444	0500	00	1	74313		CLA	RDFLD+224,1	WORD READ	
01445	0560	00	1	73713		LDQ	WRFLD+224,1	WORD GENERATED	
01446	0340	00	1	73713		CAS	WRFLD+224,1		
01447	0020	00	0	01451		TRA	*+2	ERROR	
01450	0020	00	0	01453		TRA	*+3	OK	
01451	0074	00	4	06266		TSX	ERROR-2,4		
01452	0761	00	0	10577		NOP	BCDTB+1		
01453	2	00001	1	01444		TIX	*-7,1,1	RETURN TO TEST ALL WORDS	
01454	-0520	00	0	73023		NZT	TPCHD	TEST FOR TAPE CHAN D	
01455	0020	00	0	01467		TRA	*+10	NO	
01456	0774	00	1	00040		AXT	32,1		
01457	0500	00	1	74713		CLA	RFCD+224,1	WORD READ	
01460	0560	00	1	73713		LDQ	WRFLD+224,1	WORD GENERATED	
01461	0340	00	1	73713		CAS	WRFLD+224,1		
01462	0020	00	0	01464		TRA	*+2	ERROR	
01463	0020	00	0	01466		TRA	*+3	OK	
01464	0074	00	4	06266		TSX	ERROR-2,4		
01465	0761	00	0	10603		NOP	BCDTD+1		
01466	2	00001	1	01457		TIX	*-7,1,1	RETURN TO TEST ALL WORDS	
01467	-0520	00	0	73024		NZT	TPCHF	TEST FOR TAPE CHAN F	
01470	0020	00	0	01502		TRA	*+10	NO	
01471	0774	00	1	00040		AXT	32,1		
01472	0500	00	1	75313		CLA	RFEF+224,1	WORD READ	
01473	0560	00	1	73713		LDQ	WRFLD+224,1	WORD GENERATED	
01474	0340	00	1	73713		CAS	WRFLD+224,1		
01475	0020	00	0	01477		TRA	*+2	ERROR	
01476	0020	00	0	01501		TRA	*+3	OK	
01477	0074	00	4	06266		TSX	ERROR-2,4		
01500	0761	00	0	10607		NOP	BCDTF+1		
01501	2	00001	1	01472		TIX	*-7,1,1		
01502	2	00001	2	01503		TIX	*+1,2,1	DECREMENT RECORD NO.	
01503	-0520	00	0	73022	TPA4	NZT	TPCHB	TEST FOR TAPE CHAN B	
01504	0020	00	0	01515		TRA	*+9	NO	

01505	0774	00	1	00040	AXT	32,1	
01506	0500	00	1	74353	CLA	RDFLD+256,1	WORD READ
01507	0560	00	1	73753	LDQ	WRFLD+256,1	WORD GENERATED
01510	0340	00	1	73753	CAS	WRFLD+256,1	
01511	0020	00	0	01513	TRA	*+2	ERROR
01512	0020	00	0	01515	TRA	*+3	OK
01513	0074	00	4	06266	TSX	ERROR-2,4	
01514	0761	00	0	10577	NOP	BCDTB+1	
01515	2	00001	1	01506	TIX	*-7,1,1	RETURN TO TEST ALL WORDS
01516	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE CHAN D
01517	0020	00	0	01531	TRA	*+10	NO
01520	0774	00	1	00040	AXT	32,1	
01521	0500	00	1	74753	CLA	RFCD+256,1	WORD READ
01522	0560	00	1	73753	LDQ	WRFLD+256,1	WORD GENERATED
01523	0340	00	1	73753	CAS	WRFLD+256,1	
01524	0020	00	0	01526	TRA	*+2	ERROR
01525	0020	00	0	01530	TRA	*+3	OK
01526	0074	00	4	06266	TSX	ERROR-2,4	
01527	0761	00	0	10603	NOP	BCDTD+1	
01530	2	00001	1	01521	TIX	*-7,1,1	RETURN TO TEST ALL WORDS
01531	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE CHAN F
01532	0020	00	0	01544	TRA	*+10	NO
01533	0774	00	1	00040	AXT	32,1	
01534	0500	00	1	75353	CLA	RFEF+256,1	WORD READ
01535	0560	00	1	73753	LDQ	WRFLD+256,1	WORD GENERATED
01536	0340	00	1	73753	CAS	WRFLD+256,1	
01537	0020	00	0	01541	TRA	*+2	ERROR
01540	0020	00	0	01543	TRA	*+3	OK
01541	0074	00	4	06266	TSX	ERROR-2,4	
01542	0761	00	0	10607	NOP	BCDTF+1	
01543	2	00001	1	01534	TIX	*-7,1,1	
01544	0020	00	0	01546	TRA	*+2	
01545	634760516166				BCD	1TP R/W	DUMMY FOR RD AND WRITE TAPE
01546	0074	00	4	06344	TSX	RDNCK,4	
01547	0761	00	0	01546	NOP	*-1	

\*INITIALIZE TO USE ROUTINE ABOVE TO TEST READING  
 \*TAPE FROM CHANNEL A,C+D. THIS WILL BE THEN CHANGED  
 \*BACK TO ORIGINAL STATE, AFTER TESTING.

01550	0500	00	0	01221	B	CLA	D-8	L	SWT 3
01551	0601	00	0	71321		STO	SAVE1		
01552	0500	00	0	71316		CLA	BCD1	L	TRA YALE-4
01553	0601	00	0	01221		STO	D-8		
01554	0500	00	0	01550		CLA	B	L	CLA A-1
01555	0601	00	0	71322		STO	SAVE2		
01556	0500	00	0	71317		CLA	BCD2	L	TRA C

01557	0601	00	0	01550	STO B	
01560	0500	00	0	01251	CLA TAB	
01561	0601	00	0	01155	STO A+8	
01562	0601	00	0	01265	STO TXA	
01563	0601	00	0	01327	STO TPA1	
01564	0601	00	0	01375	STO TPA2	
01565	0601	00	0	01442	STO TPA3	
01566	0601	00	0	01503	STO TPA4	
01567	0500	00	0	01255	CLA TAB+4	
01570	0601	00	0	01167	STO A+18	
01571	0601	00	0	01300	STO TXA+11	
01572	0601	00	0	01342	STO TPA1+11	
01573	0601	00	0	01407	STO TPA2+10	
01574	0601	00	0	01454	STO TPA3+10	
01575	0601	00	0	01516	STO TPA4+11	
01576	0500	00	0	01261	CLA TAB+8	
01577	0601	00	0	01203	STO D-22	
01600	0601	00	0	01313	STO TPA1-12	
01601	0601	00	0	01355	STO TPA2-16	
01602	0601	00	0	01422	STO TPA3-16	
01603	0601	00	0	01467	STO TPA4-12	
01604	0601	00	0	01531	STO B-15	
01605	0500	00	0	10602	CLA BCDTD	
01606	0560	00	0	10600	LDQ BCDTC	
01607	0601	00	0	10600	STO BCDTC	
01610	-0600	00	0	10602	STQ BCDTD	
01611	0500	00	0	10606	CLA BCDTF	
01612	0560	00	0	10604	LDQ BCDTE	
01613	0601	00	0	10604	STO BCDTE	
01614	-0600	00	0	10606	STQ BCDTF	
01615	0500	00	0	10574	CLA BCDTA	
01616	0560	00	0	10576	LDQ BCDTB	
01617	0601	00	0	10576	STO BCDTB	
01620	-0600	00	0	10574	STQ BCDTA	
01621	0760	00	0	00163	SWT 3	
01622	0020	00	0	01624	TRA *+2	
01623	0020	00	0	01627	TRA *+4	
* PRINT --						
**	00000	WRITE TAPE AND READ TAPE-SECTION 11 COMPLETE				
01624	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE
01625	0760	00	0	01363	SPRA 3	
01626	0540	00	0	77766	RCHA SECTN+10	
01627	0020	00	0	01153	TRA A+6	

\*READ TAPE AND WRITE PRINTER DURING MF OPERATION

01630	0074	00	4	05544	TSX	CTX, 4	
01631	0020	72	0	01632	HTR	YALE-2, 0, BEGFP	
01632	-0520	00	0	73022	NZT	TPCHB	TEST FOR TAPE-CHAN B
01633	0020	00	0	01635	TRA	*+2	NO
01634	0764	00	0	02200	YALE	BSRB	
01635	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE-CHAN D
01636	0020	00	0	01640	TRA	*+2	NO
01637	0764	00	0	04200		BSRD	
01640	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE-CHAN F
01641	0020	00	0	01643	TRA	*+2	NO
01642	0764	00	0	06200		BSRF	
01643	-0520	00	0	73022	NZT	TPCHB	TEST FOR TAPE-CHAN B
01644	0020	00	0	01647	TRA	*+3	NO
01645	0762	00	0	02220		RTBB	
01646	-0540	00	0	71451	RCHB	SHIMG+6	NO TGRS ON-WRD CNT 400
01647	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE-CHAN D
01650	0020	00	0	01653	TRA	*+3	NO
01651	0762	00	0	04220		RTBD	
01652	-0541	00	0	73025	RCHD	SHI-1	NO INDS ON-WC 400
01653	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE-CHAN F
01654	0020	00	0	01657	TRA	*+3	NO
01655	0762	00	0	06220		RTBF	
01656	-0542	00	0	73026	RCHF	SHI	NO INDS ON-WC 400
01657	-0520	00	0	73007	NZT	PRCHA	TEST FOR PRINTER-CHAN A
01660	0020	00	0	01663	TRA	*+3	NO
01661	0766	00	0	01361		WPRA	
01662	0540	00	0	71736		RCHA SHIM	1 AND 2 TGRS ON-WRD CNT 30 MAY ACT AS IND ADD CNTL WRD IF SO A SECOND LINE OR PART OF A 2ND LINE MAY BE PRINTED
01663	-0520	00	0	73013	NZT	PRCHC	TEST FOR PRINTER-CHAN C
01664	0020	00	0	01667	TRA	*+3	NO
01665	0766	00	0	03361		WPRC	
01666	0541	00	0	71736		RCHC SHIM	1 AND 2 TGRS ON-WRD CNT 30 MAY ACT AS IND ADD CNTL WRD IF SO A SECOND LINE OR PART OF A 2ND LINE MAY BE PRINTED

01667	-0520	00	0	73017	NZT	PRCHE	TEST FOR PRINTER-CHAN E
01670	0020	00	0	01673	TRA	*+3	NO
01671	0766	00	0	05361	WPRE		
01672	0542	00	0	71736	RCHE	SHIM	1 AND 2 TGRS ON-WRD CNT 30 MAY ACT AS IND ADD CNTL WRD IF SO A SECOND LINE OR PART OF A 2ND LINE MAY BE PRINTED
01673	0020	00	0	01265	TRA	TXA	

\*ROUTINE TO RESTORE INITIAL INSTRUCTUIONS

01674	0500	00	0	71321	C	CLA	SAVE1	RESTORE SWT 3
01675	0601	00	0	01221		STO	D-8	
01676	0500	00	0	71322		CLA	SAVE2	RESTORE CLA D-2
01677	0601	00	0	01550		STO	B	
01700	0500	00	0	10600		CLA	BCDTC	
01701	0560	00	0	10602		LDQ	BCDTD	
01702	0601	00	0	10602		STO	BCDTD	
01703	-0600	00	0	10600		STQ	BCDTC	
01704	0500	00	0	10604		CLA	BCDTE	
01705	0560	00	0	10606		LDQ	BCDTF	
01706	0601	00	0	10606		STO	BCDTF	
01707	-0600	00	0	10604		STQ	BCDTE	
01710	0500	00	0	01752		CLA	TBA	
01711	0601	00	0	01155		STO	A+8	
01712	0601	00	0	01265		STO	TXA	
01713	0601	00	0	01327		STO	TPA1	
01714	0601	00	0	01375		STO	TPA2	
01715	0601	00	0	01442		STO	TPA3	
01716	0601	00	0	01503		STO	TPA4	
01717	0500	00	0	01764		CLA	TBA1	
01720	0601	00	0	01167		STO	A+18	
01721	0601	00	0	01300		STO	TXA+11	
01722	0601	00	0	01342		STO	TPA1+11	
01723	0601	00	0	01407		STO	TPA2+10	
01724	0601	00	0	01454		STO	TPA3+10	
01725	0601	00	0	01516		STO	TPA4+11	
01726	0500	00	0	01777		CLA	TBA2	
01727	0601	00	0	01203		STO	D-22	
01730	0601	00	0	01313		STO	TPA1-12	
01731	0601	00	0	01355		STO	TPA2-16	
01732	0601	00	0	01422		STO	TPA3-16	
01733	0601	00	0	01467		STO	TPA4-12	
01734	0601	00	0	01531		STO	B-15	
01735	0500	00	0	10574		CLA	BCDTA	
01736	0560	00	0	10576		LDQ	BCDTB	
01737	0601	00	0	10576		STO	BCDTB	
01740	-0600	00	0	10574		STQ	BCDTA	

01741	0774	00	1	00400		AXT 256,1	400 INTO XRA
01742	0774	00	2	00000		AXT 0,2	ZERO INTO XRB
01743	0500	00	0	72017		CLA ONE	L+1
01744	0601	00	0	06343		STO RECNO	SET RECNO CONSTANT
01745	0734	00	1	00000		PAX 0,1	
01746	0400	00	0	72017		ADD ONE	L+1
01747	0621	00	0	06342		STA WDNO	SET WDNO CONSTANT
01750	0074	00	4	06344		TSX RDNCK,4	RDNCY CHECK-RD TAPE CHAN B
01751	0761	00	0	00407		NOP UGO-2	

\*COMPARISON FOR READ TAPE AND WRITE PRINTER SECTION

01752	-0520	00	0	73022	TBA	NZT TPCHB	TEST FOR TAPE CHAN B
01753	0020	00	0	01764		TRA *+9	NO
01754	0500	00	1	74353		CLA RDFLD+256,1	WORD READ
01755	0560	00	1	73753		LDQ WRFLD+256,1	WORD GENERATED
01756	0340	00	1	73753		CAS WRFLD+256,1	
01757	0020	00	0	01761		TRA *+2	ERROR
01760	0020	00	0	01763		TRA *+3	OK
01761	0074	00	4	06266		TSX ERROR-2,4	
01762	0761	00	0	10577		NOP BCDTB+1	
01763	2 00001	1	1	01754		TIX *-7,1,1	RETURN TO TEST A WORDS
01764	-0520	00	0	73023	TBA1	NZT TPCHD	TEST FOR TAPE CHAN D
01765	0020	00	0	01777		TRA *+10	NO
01766	0774	00	1	00400		AXT 256,1	
01767	0500	00	1	74753		CLA RFCD+256,1	WORD READ
01770	0560	00	1	73753		LDQ WRFLD+256,1	CORRECT WORD
01771	0340	00	1	73753		CAS WRFLD+256,1	
01772	0020	00	0	01774		TRA *+2	ERROR
01773	0020	00	0	01776		TRA *+3	OK
01774	0074	00	4	06266		TSX ERROR-2,4	
01775	0761	00	0	10603		NOP BCDTD+1	
01776	2 00001	1	1	01767		TIX *-7,1,1	
01777	-0520	00	0	73024	TBA2	NZT TPCHF	TEST FOR TAPE CHAN F
02000	0020	00	0	02012		TRA *+10	NO
02001	0774	00	1	00400		AXT 256,1	
02002	0500	00	1	75353		CLA RFEF+256,1	WORD READ
02003	0560	00	1	73753		LDQ WRFLD+256,1	CORRECT WORD
02004	0340	00	1	73753		CAS WRFLD+256,1	
02005	0020	00	0	02007		TRA *+2	ERROR
02006	0020	00	0	02011		TRA *+3	OK
02007	0074	00	4	06266		TSX ERROR-2,4	
02010	0761	00	0	10607		NOP BCDTF+1	
02011	2 00001	1	1	02002		TIX *-7,1,1	
02012	0074	00	4	06275		TSX OK,4	



02013 0020 00 0 01227       TRA D-2  
02014 0761 00 0 00000       NOP

02015 0760 00 0 00163       SWT 3  
02016 0020 00 0 02020       TRA \*+2  
02017 0020 00 0 02023       TRA \*+4

\*   PRINT --

\*\*   00000   READ TAPE AND WRITE PRINTER-SECTION 12 COMPLETE

02020 0766 00 0 01361       WPRA               PRINT SECTION COMPLETE  
02021 0760 00 0 01363       SPRA 3  
02022 0540 00 0 77767       RCHA SECTN+11

02023 0074 00 2 72327 YUK TSX SHIFT,2 SHIFT PRINT IMAGE

\*WRITE TAPE AND WRITE PUNCH DURING MF OPERATIONS

02024	-0520	00	0	73022	WTWPU	NZT TPCHB	
02025	0020	00	0	02030		TRA *+3	NO
02026	-0760	00	0	02000		ETTB	
02027	0772	00	0	02200		REWB	
02030	-0520	00	0	73023		NZT TPCHD	TEST FOR TAPE-CHAN D
02031	0020	00	0	02034		TRA *+3	NO
02032	-0760	00	0	04000		ETTD	
02033	0772	00	0	04200		REWD	
02034	-0520	00	0	73024		NZT TPCHF	TEST FOR TAPE-CHAN F
02035	0020	00	0	02040		TRA *+3	NO
02036	-0760	00	0	06000		ETTF	
02037	0772	00	0	06200		REWF	
02040	-0520	00	0	73010		NZT PUCHA	TEST FOR PUNCH-CHAN A
02041	0020	00	0	02044		TRA *+3	NO
02042	0766	00	0	01341		WPUA	
02043	0540	00	0	71563		RCHA WPUA	TGRS S AND 1 ON-WRD CNT 10
02044	-0520	00	0	73014		NZT PUCHC	TEST FOR PUNCH-CHAN C
02045	0020	00	0	02050		TRA *+3	NO
02046	0766	00	0	03341		WPUC	
02047	0540	00	0	71563	LACE1	RCHA WPUA	TGRS S AND 1 ON-WRD CNT 10
02050	-0520	00	0	73020		NZT PUCHE	TEST FOR PUNCH-CHAN E
02051	0020	00	0	02054		TRA *+3	NO
02052	0766	00	0	05341		WPUE	
02053	0542	00	0	71563		RCHE WPUA	TGRS S AND 1 ON-WRD CNT 10
02054	-0520	00	0	73022		NZT TPCHB	TEST FOR TAPE-CHAN B
02055	0020	00	0	02060		TRA *+3	NO
02056	0766	00	0	02220		WTBB	
02057	-0540	00	0	71450		RCHB SHIMG+5	NO TGRS ON-WRD CNT 400
02060	-0520	00	0	73023		NZT TPCHD	TEST FOR TAPE-CHAN D
02061	0020	00	0	02064		TRA *+3	NO
02062	0766	00	0	04220		WTBD	
02063	-0541	00	0	71450		RCHD SHIMG+5	NO INDS ON-WRD CNT 400
02064	-0520	00	0	73024		NZT TPCHF	TEST FOR TAPE-CHAN F
02065	0020	00	0	02070		TRA *+3	NO

02066 0766 00 0 06220 WTBF  
 02067 -0542 00 0 71450 RCHF SHIMG+5 NO INDS ON-WRD CNT 400

02070 0020 00 0 02072 TRA \*+2 CONTINUE

\*FLOATING-TO-FIXED, FIXED-TO-FLOATING INTEGER  
 \*TRANSLATION, AUTOMATIC MODE

02071 642621606060 BCD 1UFA  
 02072 0074 00 4 72252 BEGFP TSX PART2,4  
 02073 0774 00 1 02142 AXT SECFP,1 SET RETURN ADDRESS  
 02074 0634 00 1 72116 SXA SECT2,1 IN CASE OF TRAP  
 02075 0500 00 0 71574 CLA FPCON L 202.402  
 02076 -0300 00 0 71575 UFA FPCON+1 L 233.0  
 02077 -0320 00 0 71631 ANA KK FIXED POINT 2 NOW IN ACC

02100 0340 00 0 71632 CAS TWO  
 02101 1 00000 0 02103 TXI \*+2 ERROR IN FIXING  
 02102 0020 00 0 02110 TRA \*+6 OK  
 02103 -0600 00 0 71633 STQ Q  
 02104 0560 00 0 71632 LDQ TWO CORRECT ANS IN MQ  
 02105 0074 00 4 06267 TSX ERROR-1,4 ERROR IN ACC  
 02106 0020 00 0 02072 TRA BEGFP  
 02107 0560 00 0 71633 LDQ Q RESTORE QUOTIENT  
 02110 0131 00 0 00000 XCA  
 02111 0340 00 0 71634 CAS CCH L 200.0  
 02112 1 00000 0 02114 TXI \*+2 ERROR  
 02113 0020 00 0 02117 TRA \*+4 OK  
 02114 0560 00 0 71634 LDQ CCH CORRECT ANS IN MQ  
 02115 0074 00 4 06267 TSX ERROR-1,4 ERROR IN MQ FACTOR,  
 02116 0020 00 0 02072 TRA BEGFP CORRECT ANS IN MQ  
 ORIG ANS. IN ACC

\*TRY TO FLOAT A 2 AND RECOVER ORIG. NUMBER

02117 0500 00 0 71632 CLA TWO L+2  
 02120 -0501 00 0 71575 ORA FPCON+1 L 233.0  
 02121 0300 00 0 71575 FAD FPCON+1 L 233.0  
 02122 0340 00 0 71574 CAS FPCON SHOULD EQUAL 202.4  
 02123 1 00000 0 02125 TXI \*+2 ERROR  
 02124 0020 00 0 02132 TRA \*+6 OK  
 02125 -0600 00 0 71633 STQ Q SAVE MQ  
 02126 0560 00 0 71574 LDQ FPCON L 202.4-CORRECT ANS  
 02127 0074 00 4 06267 TSX ERROR-1,4 ERROR IN FLOATING A2  
 02130 0020 00 0 02072 TRA BEGFP  
 02131 0560 00 0 71633 LDQ Q RESTORE QUOTIENT  
 02132 0131 00 0 00000 XCA CHECK MQ FACTOR  
 02133 0340 00 0 71635 CAS CCH1 L 147.0  
 02134 1 00000 0 02136 TXI \*+2 ERROR  
 02135 0020 00 0 02146 TRA \*+9 OK  
 02136 0560 00 0 71635 LDQ CCH1 L 147.0  
 02137 0074 00 4 06267 TSX ERROR-1,4 MQ ERROR

02140	0020	00	0	02072		TRA BEGFP	ANSWER IN MQ,ORIG ANSWER
02141	0020	00	0	02146		TRA *+5	IN ACCUMULATOR
02142	0534	00	1	00000	SECFP	LXA 0,1	TRAP ADDRESS TO XRA
02143	1	77777	1	02144		TXI *+1,1,-1	XRA-1
02144	0074	00	4	06267		TSX ERROR-1,4	TRAP ERROR, ADDRESS
02145	0020	00	0	02072		TRA BEGFP	OF INSTRUCTION
							WHICH CASUSED TRAP
							IS IN XRA
02146	0020	00	0	02151		TRA *+3	CONTINUE
02147	0020	00	0	02072		TRA BEGFP	

\*SQUARE ROOT-SHOULD NOT TRAP. USED FAD AND FDP

02150	262447262124					BCD 1FDPFAD	
02151	0074	00	4	72252	AT2	TSX PART2,4	TURN TRIGS OFF,CLEAR
02152	0761	00	0	00000		NOP	LITE 4 ON
02153	0774	00	1	02167		AXT *+12,1	SET RETURN ADDRESS
02154	0634	00	1	72116		SXA SECT2,1	IN CASE OF TRAP
02155	0500	00	0	71576		CLA FPCON+2	DEC 16+205.4
02156	0074	00	4	72260		TSX SQRT,4	SQ ROOT SUB ROUTINE
02157	0021	00	0	02164		TTR *+5	
02160	0402	00	0	71577		SUB FPCON+3	DEC 4+203.4
02161	0100	00	0	02173		TZE *+10	
02162	0400	00	0	71577		ADD FPCON+3	ERROR, REPLACE ACC
02163	0560	00	0	71577		LDQ FPCON+3	CORRECT ANS IN MQ
02164	0074	00	4	06267		TSX ERROR-1,4	SQUARE ROOT ERROR
02165	0020	00	0	02151		TRA AT2	
02166	0020	00	0	02173		TRA *+5	CONTINUE
02167	0534	00	1	00000		LXA 0,1	TRAP ADDRESS TO XRA
02170	1	77777	1	02171		TXI *+1,1,-1	XRA-1
02171	0074	00	4	06267		TSX ERROR-1,4	TRAP ERROR, ADDRESS OF
							INST. THAT CAUSED TRAP
							IS IN XRA
02172	0020	00	0	02151		TRA AT2	REPEAT
02173	0020	00	0	02176		TRA *+3	CONTINUE
02174	0020	00	0	02151		TRA AT2	

\*THE QUADRATIC FORMULA, 3 PASSES. 2 ANSWERS EACH PASS.

\*IN CASE NA ERROR IS DETECTED, THE CORRECT ANS. WILL

\*BE PLACED IN MQ, ORIGINAL ANS. REMAINS IN ACC.

02175	264746476260					BCD 1FPOPS	
02176	0074	00	4	72252	AT3	TSX PART2,4	LIGHT 4 ON,CLEAR
02177	-0500	00	0	02225		CAL AT3+23	SET RETURN ADDRESS
02200	0621	00	0	72116		STA SECT2	IN CASE OF TRAP
02201	-0534	00	1	02213		LXD AT3+13,1	21 XRA
02202	0560	00	1	71625		LDQ COEF,1	A
02203	0260	00	1	71627		FMP COEF+2,1	AXC
02204	0361	00	0	71626		ACL SAY	X4
02205	0601	00	0	72540		STO FREE	4AC
02206	0560	00	1	71626		LDQ COEF+1,1	B

02207	0260	00	1	71626	FMP	COEF+1,1	B SQUARED
02210	0302	00	0	72540	FSB	FREE	-4AC
02211	0340	00	1	71630	CAS	COEF+3,1	CHECK RADICAND
02212	1	00000	0	02214	TXI	*+2	ERROR
02213	1	00025	0	02220	TXI	*+5,0,21	OK
02214	0560	00	1	71630	LDQ	COEF+3,1	CORRECT ANS IN MQ
02215	0074	00	4	06267	TSX	ERROR-1,4	ERR. IN B SQRD -4AC
02216	0020	00	0	02176	TRA	AT3	
02217	0500	00	1	71630	CLA	COEF+3,1	GO ON WITH CORRECT RADICAND R+SQUARE ROOT OF
02220	0074	00	4	72260	TSX	SQRT,4	B SQUARED MINUS 4AC
02221	0021	00	0	02226	TTR	*+5	ERROR IN RADICAND
02222	0340	00	1	71631	CAS	COEF+4,1	CHECK SQUARE ROOT
02223	0021	00	0	02225	TTR	*+2	ERROR
02224	1	00000	0	02232	TXI	*+6	OK
02225	0761	00	0	02302	NOP	AT3A	
02226	0560	00	1	71631	LDQ	COEF+4,1	CORRECT ANS. IN MQ
02227	0074	00	4	06267	TSX	ERROR-1,4	ERROR IN SQUARE ROOT
02230	0020	00	0	02176	TRA	AT3	
02231	0500	00	1	71631	CLA	COEF+4,1	GO ON WITH CORRECT RAD.
02232	0760	00	0	00012	DCT		TURN OFF DC TRIG
02233	0761	00	0	00000	NOP		
02234	0601	00	0	72540	STO	FREE	
02235	0560	00	1	71625	LDQ	COEF,1	A+201.4
02236	0260	00	0	71574	FMP	FPCON	2A+202.4
02237	0601	00	0	72541	STO	FREE+1	
02240	0502	00	1	71626	CLS	COEF+1,1	-B
02241	0300	00	0	72540	FAD	FREE	-B+R
02242	0241	00	0	72541	FDP	FREE+1	-B+R/2A
02243	0760	00	0	00012	DCT		SHOULD DIVIDE
02244	0021	00	0	02246	TTR	*+2	ERROR
02245	1	00000	0	02251	TXI	*+4	OK
02246	0560	00	1	71632	LDQ	COEF+5,1	CORRECT QUOTIENT
02247	0074	00	4	06267	TSX	ERROR-1,4	DCT ERROR ON FDP
02250	0020	00	0	02176	TRA	AT3	REPEAT
02251	0131	00	0	00000	XCA		
02252	0340	00	1	71632	CAS	COEF+5,1	CHECK FIRST ANS.
02253	0021	00	0	02255	TTR	*+2	ERROR
02254	1	00000	0	02260	TXI	*+4	OK
02255	0560	00	1	71632	LDQ	COEF+5,1	CORRECT ANS IN MQ
02256	0074	00	4	06267	TSX	ERROR-1,4	FIRST ANS WRONG
02257	0020	00	0	02176	TRA	AT3	
02260	0502	00	1	71626	CLS	COEF+1,1	-B
02261	0302	00	0	72540	FSB	FREE	-B-R
02262	0241	00	0	72541	FDP	FREE+1	-B-R/2A
02263	0760	00	0	00012	DCT		SHOULD DIVIDE
02264	0021	00	0	02266	TTR	*+2	ERROR
02265	1	00000	0	02271	TXI	*+4	OK
02266	0560	00	1	71633	LDQ	COEF+6,1	CORRECT QUOTIENT
02267	0074	00	4	06267	TSX	ERROR-1,4	DCT ERROR ON FDP
02270	0020	00	0	02176	TRA	AT3	
02271	0131	00	0	00000	XCA		

02272	0340	00	1	71633	CAS COEF+6,1	CHECK SECOND ANS
02273	0021	00	0	02275	TTR *+2	ERROR
02274	1	00000	0	02300	TXI *+4	
02275	0560	00	1	71633	LDQ COEF+6,1	CORRECT ANS IN MQ
02276	0074	00	4	06267	TSX ERROR-1,4	SECOND ANS WRONG
02277	0020	00	0	02176	TRA AT3	
02300	2	00007	1	02202	TIX AT3+4,1,7	NEXT PASS
02301	0020	00	0	02307	TRA *+6	FINISHED
02302	0534	00	2	00000	AT3A LX A 0,2	TRAP ADDRESS XRB
02303	1	77777	2	02304	TXI *+1,2,-1	XRB-1
02304	0074	00	4	06267	TSX ERROR-1,4	TRAP ERROR-ADDRESS OF
02305	0020	00	0	02176	TRA AT3	INST. THAT CAUSE TRAP
02306	0020	00	0	02300	TRA *-6	IS IN XRB
02307	0074	00	4	06344	TSX RDNCK,4	CHECK RDNCY-WRITE TAPE
02310	0761	00	0	00740	NOP RDCKT	
02311	0020	00	0	02313	TRA *+2	
02312	314663606060				BCD 1IOT	TEST I/O TGR-WRITE PUNCH
02313	0760	00	0	00005	IOT	TEST I/O TGR-WR PUNCH
02314	0020	00	0	02316	TRA *+2	ERROR
02315	0020	00	0	02320	TRA *+3	OK-SHOULD BE OFF
02316	0074	00	4	06267	TSX ERROR-1,4	
02317	-3	00000	4	02313	TXL *-4,4,0	
02320	0074	00	4	06275	TSX OK,4	
02321	0020	00	0	02023	TRA YUK	
02322	0761	00	0	00000	NOP	
02323	0760	00	0	00163	SWT 3	
02324	0020	00	0	02326	TRA *+2	
02325	0020	00	0	02331	TRA *+4	

\* PRINT --

\*\* 00000 WRITE TAPE AND WRITE PUNCH-SECTION 13 COMPLETE

02326	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE
02327	0760	00	0	01363	SPRA 3	
02330	0540	00	0	77770	RCHA SECTN+12	
02331	0500	00	0	72366	CLA RSET	
02332	0601	00	0	00000	STO 0	

\*WRITE TAPE READ PRINTER DURING MF OPERATION

02333	0074	00	4	05544	AAH	TSX CTX, 4		
02334	0026	14	0	02334		HTR * , , WHOOP		
02335	-0520	00	0	73007		NZT PRCHA	PRINTER-CHAN A	
02336	0020	00	0	02341		TRA *+3	NO	
02337	0762	00	0	01361		RPRC		
02340	0540	00	0	10464		RCHA SHOOK		
02341	-0520	00	0	73013		NZT PRCHC	PRINTER-CHAN C	
02342	0020	00	0	02345		TRA *+3	NO	
02343	0762	00	0	03361		RPRC		
02344	0541	00	0	73033		RCHC SHOK		
02345	-0520	00	0	73017		NZT PRCHE	PRINTER-CHAN E	
02346	0020	00	0	02351		TRA *+3	NO	
02347	0762	00	0	05361		RPRE		
02350	0542	00	0	73044		RCHE SHOK1		
02351	-0520	00	0	73022		NZT TPCHB	TAPE-CHAN B	
02352	0020	00	0	02355		TRA *+3	NO	
02353	-0760	00	0	02000		ETTB		
02354	0772	00	0	02200		REWB		
02355	-0520	00	0	73023		NZT TPCHD	TAPE-CHAN D	
02356	0020	00	0	02361		TRA *+3	NO	
02357	-0760	00	0	04000		ETTD		
02360	0772	00	0	04200		REWD		
02361	-0520	00	0	73024		NZT TPCHF	TAPE-CHAN F	
02362	0020	00	0	02365		TRA *+3	NO	
02363	-0760	00	0	06000		ETTF		
02364	0772	00	0	06200		REWF		
02365	-0520	00	0	73022		NZT TPCHB	TAPE-CHAN B	
02366	0020	00	0	02371		TRA *+3	NO	
02367	0766	00	0	02220		WTBB		
02370	-0540	00	0	72020		RCHB GO		
02371	-0520	00	0	73023		NZT TPCHD	TAPE-CHAN D	
02372	0020	00	0	02375		TRA *+3	NO	
02373	0766	00	0	04220		WTBD		
02374	-0541	00	0	72020		RCHD GO		

02375	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
02376	0020	00	0	02401	TRA	*+3	NO
02377	0766	00	0	06220	WTBF		
02400	-0542	00	0	72020	RCHF	GO	
02401	0020	00	0	02404	TRA	*+3	CONTINUE
02402	0020	00	0	02176	TRA	AT3	

\*REPEAT AT3 WITH INDIRECT ADDRESSING. THE  
\*SQUARE ROOT SUB-ROUTINE WITH INDIRECT  
\*ADDRESSING IS USED.

\*THE QUADRATIC FORMULA, 3 PASSES, 2 ANSWERS EACH PASS

02403	264746476260				BCD	1FPOPS	
02404	0074	00	4	72255	IDA2	TSX PART3,4	LITES 3 AND 4 ON-CLEAR
02405	-0500	00	0	02433	CAL	IDA2+23	SET RETURN ADDRESS
02406	0621	00	0	72116	STA	SECT2	IN CASE OF TRAP
02407	-0534	00	1	02421	LXD	IDA2+13,1	21 INTO XRA
02410	0560	60	0	02202	LDQ*	AT3+4	A
02411	0260	60	0	02203	FMP*	AT3+5	AXC
02412	0361	60	0	02204	ACL*	AT3+6	X4
02413	0601	60	0	02205	STO*	AT3+7	4AC
02414	0560	60	0	02206	LDQ*	AT3+8	B
02415	0260	60	0	02207	FMP*	AT3+9	B SQUARED
02416	0302	60	0	02210	FSB*	AT3+10	-4AC
02417	0340	60	0	02211	CAS*	AT3+11	CHECK RADICAND
02420	1 00000	0	0	02422	TXI	*+2	ERROR
02421	1 00025	0	0	02426	TXI	*+5,0,21	OK
02422	0560	60	0	02214	LDQ*	AT3+14	CORRECT ANS IN MQ
02423	0074	00	4	06267	TSX	ERROR-1,4	ERR. IN B SQRD -4AC
02424	0020	00	0	02404	TRA	IDA2	
02425	0500	60	0	02217	CLA*	AT3+17	PLACE CORRECT RADICAND IN ACC AND CONTINUE
02426	0074	00	4	72302	TSX	SQRI,4	GET R, WHERE R+SQUARE- ROOT OF B SQRD-4AC.
02427	0021	00	0	02434	TTR	*+5	ERROR, RADICAND SHOULD HAVE BEEN PLUS.
02430	0340	60	0	02222	CAS*	AT3+20	CHECK SQUARE ROOT
02431	0021	00	0	02433	TTR	*+2	ERROR
02432	1 00000	0	0	02440	TXI	*+6	OK
02433	0761	00	0	02434	NOP	IDA2+24	
02434	0560	60	0	02226	LDQ*	AT3+24	CORRECT ANS TO MQ
02435	0074	00	4	06267	TSX	ERROR-1,4	ERROR IN SQUARE ROOT
02436	0020	00	0	02404	TRA	IDA2	
02437	0500	60	0	02231	CLA*	AT3+27	
02440	0760	00	0	00012	DCT		TURN OFF DC TRIG.
02441	0761	00	0	00000	NOP		
02442	0601	60	0	02234	STO*	AT3+30	
02443	0560	60	0	02235	LDQ*	AT3+31	A+201.4
02444	0260	60	0	02236	FMP*	AT3+32	2A+202.4



02445	0601	60	0	02237	STO*	AT3+33	
02446	0502	60	0	02240	CLS*	AT3+34	-B
02447	0300	60	0	02241	FAD*	AT3+35	+R
02450	0241	60	0	02242	FDP*	AT3+36	/2A
02451	0760	00	0	00012	DCT		SHOULD DIVIDE
02452	0021	00	0	02454	TTR	*+2	ERROR
02453	1	00000	0	02457	TXI	*+4	OK
02454	0560	60	0	02246	LDQ*	AT3+40	CORRECT QUOTIENT TO MQ
02455	0074	00	4	06267	TSX	ERROR-1,4	DC ON,ERROR
02456	0020	00	0	02404	TRA	IDA2	
02457	0131	00	0	00000	XCA		
02460	0340	60	0	02252	CAS*	AT3+44	CHECK FIRST ANS
02461	0021	00	0	02463	TTR	*+2	ERROR
02462	1	00000	0	02466	TXI	*+4	OK
02463	0560	60	0	02255	LDQ*	AT3+47	CORRECT ANS TO MQ
02464	0074	00	4	06267	TSX	ERROR-1,4	FIRST ANS WRONG
02465	0020	00	0	02404	TRA	IDA2	
02466	0502	60	0	02260	CLS*	AT3+50	-B
02467	0302	60	0	02261	FSB*	AT3+51	-R
02470	0241	60	0	02262	FDP*	AT3+52	/2A
02471	0760	00	0	00012	DCT		SHOULD DIVIDE
02472	0021	00	0	02474	TTR	*+2	ERROR
02473	1	00000	0	02477	TXI	*+4	OK
02474	0560	60	0	02266	LDQ*	AT3+56	CORRECT QUOTIENT TO MQ
02475	0074	00	4	06267	TSX	ERROR-1,4	DC ON-ERROR
02476	0020	00	0	02404	TRA	IDA2	
02477	0131	00	0	00000	XCA		
02500	0340	60	0	02272	CAS*	AT3+60	CHECK SECOND ANS
02501	0021	00	0	02503	TTR	*+2	ERROR
02502	1	00000	0	02506	TXI	*+4	OK
02503	0560	60	0	02275	LDQ*	AT3+63	CORRECT ANS IN MQ
02504	0074	00	4	06267	TSX	ERROR-1,4	SECOND ANS WRONG
02505	0020	00	0	02404	TRA	IDA2	
02506	2	00007	1	02410	TIX	IDA2+4,1,7	NEXT PASS
02507	0020	00	0	02515	TRA	*+6	
02510	0534	00	2	00000	IDA2T	LXA 0,2	TRAP ADDRESS TO XRB
02511	1	77777	2	02512	TXI	*+1,2,-1	XRB-1
02512	0074	00	4	06267	TSX	ERROR-1,4	TRAP ERROR-ADDR OF INST.
02513	0020	00	0	02404	TRA	IDA2	THAT CAUSED TRAP IN XRB
02514	0020	00	0	02506	TRA	*-6	GO NO TO NEXT PASS
02515	0074	00	4	06344	TSX	RDNCK,4	TEST RDNCY-TAPE READ
02516	0761	00	0	00407	NOP	UGO-2	
02517	0500	00	0	72366	CLA	RSET	
02520	0601	00	0	00000	STO	0	
02521	0020	00	0	02523	TRA	*+2	CONTINUE
02522	314663606060				BCD	1IOT	
02523	0760	00	0	00005	IOT		
02524	0020	00	0	02526	TRA	*+2	ERROR-SHOULD BE OFF

02525	0020	00	0	02530	TRA	*+3	OK
02526	0074	00	4	06267	TSX	ERROR-1,4	
02527	-3	00000	4	02523	TXL	*-4,4,0	
02530	0074	00	4	06275	TSX	OK,4	
02531	0020	00	0	02335	TRA	AAH+2	
02532	0761	00	0	00000	NOP		
02533	-0520	00	0	73022	NZT	TPCHB	TEST FOR TAPE-CHAN B
02534	0020	00	0	02536	TRA	*+2	NO
02535	0764	00	0	02200	OKK	BSRB	
02536	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE-CHAN D
02537	0020	00	0	02541	TRA	*+2	NO
02540	0764	00	0	04200	BSRD		
02541	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE-CHAN F
02542	0020	00	0	02544	TRA	*+2	NO
02543	0764	00	0	06200	BSRF		
02544	0774	00	1	00400	AXT	256,1	CLEAR
02545	0600	00	1	74353	STZ	RDFLD+256,1	READ
02546	0600	00	1	74753	STZ	RFCD+256,1	
02547	0600	00	1	75353	STZ	RFEF+256,1	
02550	2	00001	1	02545	TIX	*-3,1,1	IN AREA
*TEST WRITE PRINTER BINARY AND READ TAPE WITH IND 19							
02551	-0520	00	0	73007	NZT	PRCHA	TEST FOR PRINTER-CHAN A
02552	0020	00	0	02556	TRA	*+4	NO
02553	0766	00	0	01362	WPBA		WRITE PRINTER BINARY
02554	0760	00	0	01363	SPRA	3	
02555	0540	00	0	71454	RCHA	RCDA+2	S TRG ON-WRD CNT 2
02556	-0520	00	0	73013	NZT	PRCHC	TEST FOR PRINTER-CHAN C
02557	0020	00	0	02563	TRA	*+4	NO
02560	0766	00	0	03362	WPBC		
02561	0760	00	0	03363	SPRC	3	
02562	0541	00	0	71454	RCHC	RCDA+2	S IND ON-WRD CNT 2
02563	-0520	00	0	73017	NZT	PRCHE	TEST FOR PRINTER-CHAN E
02564	0020	00	0	02570	TRA	*+4	NO
02565	0766	00	0	05362	WPBE		
02566	0760	00	0	05363	SPRE	3	
02567	0542	00	0	71454	RCHE	RCDA+2	S IND ON-WRD CNT 2

\*ABOVE CONTROL WORD SHOULD PRINT ONES ONLY  
\*THREE LINES AS FOLLOWS

```
* 11111111      1      1      1      1      1      1
* 1      11111111      1111      1 1
*1111 11111 11111 11111 11111 11111 11111 11111 11111 11111 11111111
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02570	-0520	00	0	73022	NZT TPCHB	TEST FOR TAPE B
02571	0020	00	0	02575	TRA *+4	NO
02572	0762	00	0	02220	RTBB	
02573	-0540	00	0	72021	RCHB IND19	S AND 1 TRG ON + IND19
02574	-0544	00	0	72022	LCHB IND19+1	IND 2 ON-IND ADDR
02575	-0520	00	0	73023	NZT TPCHD	TEST FOR TAPE D
02576	0020	00	0	02602	TRA *+4	NO
02577	0762	00	0	04220	RTBD	
02600	-0541	00	0	73056	RCHD ID19	S AND 1 INDS ON + IND19
02601	-0545	00	0	73057	LCHD ID19+1	IND 2 ON-IND ADDR
02602	-0520	00	0	73024	NZT TPCHF	TEST FOR TAPE F
02603	0020	00	0	02607	TRA *+4	NO
02604	0762	00	0	06220	RTBF	
02605	-0542	00	0	73067	RCHF ID191	S AND 1 INDS ON+IND19
02606	-0546	00	0	73070	LCHF ID191+1	IND 2 ON-IND ADDR
02607	0020	00	0	02611	TRA *+2	
02610	442660464762				BCD 1MF OPS	THIS SECTION TEST ALL MF INSTRUCTIONS PREVIOUSLY MISSED.IT IS A RELIABILITY TYPE TEST, BROKEN UP BY ERR EXITS, IN ORDER TO PIN THE ERROR DOWN TO AS FEW INSTRUCTIONS AS POSSIBLE
02611	0774	00	1	00200	AXT 128,1	
02612	0774	00	4	02642	AXT SKIP-3,4	ADDRESS OF NEXT SECTION
02613	0634	00	4	05467	SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
02614	0760	00	0	00000	WHOOOP CLM	
02615	0760	00	0	00002	CHS	
02616	0760	00	0	00003	SSP	MAKE ACC + ZERO
02617	-0625	00	0	05461	STL ADDR1	THIS LOC. +1-IN ADDR 1
02620	-0100	00	0	05457	TNZ GOOF	ERRO ACC NOT CLEAR OR TNZ
02621	-0625	00	0	05461	STL ADDR1	NOT WORKING
02622	-0120	00	0	05457	TMI GOOF	ERROR SSP NOT WORKING
02623	0560	00	0	71333	LDQ FIX+2	L 030303030303
02624	-0773	00	0	00003	RQL 3	MQ SHBE 3030303030
02625	-0600	00	0	71320	STQ SAVE	
02626	-0620	00	0	71321	SLQ SAVE1	SHOULD STORE 303030 IN DECR
02627	-0625	00	0	05461	STL ADDR1	
02630	0040	00	0	05457	TLQ GOOF	ERROR IN RQL,SLQ OR TLQ
02631	0162	00	0	02634	TQP *+3	MQ SHOULD BE PLUS
02632	-0625	00	0	05461	STL ADDR1	
02633	0020	00	0	05457	TRA GOOF	ERROR TQP NOT WORKING
02634	-0130	00	0	00000	XCL	MQ ZERO-ACC 3030303030
02635	0760	00	0	00001	LBT	
02636	0020	00	0	02641	TRA *+3	OK-NO BIT
02637	-0625	00	0	05461	STL ADDR1	
02640	0020	00	0	05457	TRA GOOF	ERROR-HAS BIT-LBT OR XCL

02641	2	00001	1	02614		TIX WHOOP,1,1	NOT WORKING REPEAT 200 TIMES FOR RELIABILITY
02642	0774	00	1	00200		AXT 128,1	
02643	0774	00	4	02710		AXT REP-3,4	ADDRESS OF NEXT SECTION
02644	0634	00	4	05467		SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
02645	0500	00	0	71360	SKIP	CLA FIX+23	L 303030303030
02646	0600	00	0	71322		STZ SAVE2	CLEAR SAVE2
02647	-0520	00	0	71322		NZT SAVE2	TEST FOR ZERO
02650	0520	00	0	71322		ZET SAVE2	
02651	0020	00	0	02653		TRA *+2	ERROR
02652	0020	00	0	02655		TRA *+3	OK
02653	-0625	00	0	05461		STL ADDR1	
02654	0020	00	0	05457		TRA GOOF	ERROR-STZ,NZT OR ZET NOT WORKING
02655	0625	00	0	71322		STT SAVE2	BUILD UP
02656	0630	00	0	71322		STP SAVE2	WORD IN STORAGE
02657	0622	00	0	71322		STD SAVE2	FROM ACC, USING
02660	0621	00	0	71322		STA SAVE2	STO INSTRUCTIONS SAVE2 SH CONTAIN CNTS ACC
02661	-0760	00	0	00143		SLT 3	TURN OFF LIGHT 3
02662	0761	00	0	00000		NOP	
02663	-0760	00	0	00144		SLT 4	TURN OFF LIGHT 4
02664	0761	00	0	00000		NOP	
02665	-0340	00	0	71322		LAS SAVE2	STORAGE SHBE SAME AS ACC
02666	0020	00	0	02670		TRA *+2	ERROR
02667	0020	00	0	02672		TRA *+3	
02670	-0625	00	0	05461		STL ADDR1	ERROR-STT,STP,STD,
02671	0020	00	0	05457		TRA GOOF	STA OR LOG COMP NOT WORKING
02672	0401	00	0	71331		ADM FIX	L 010101010101
02673	-0340	00	0	71361		LAS FIX+24	L 313131313131
02674	0020	00	0	02676		TRA *+2	ERROR
02675	0020	00	0	02700		TRA *+3	
02676	-0625	00	0	05461		STL ADDR1	ERROR-ADM NOT WORKING
02677	0020	00	0	05457		TRA GOOF	
02700	-0760	00	0	00143		SLT 3	TEST LITE 3-SHBE OFF
02701	0020	00	0	02703		TRA *+2	OK
02702	0020	00	0	02705		TRA *+3	ERROR
02703	-0760	00	0	00144		SLT 4	TEST LITE 4 SHBE OFF
02704	0020	00	0	02707		TRA *+3	
02705	-0625	00	0	05461		STL ADDR1	ERROR-EITHER LITE 3 OR 4
02706	0020	00	0	05457		TRA GOOF	WERE NOT TURNED OFF
02707	2	00001	1	02645		TIX SKIP,1,1	REPEAT 200 TIMES
02710	0774	00	1	00200		AXT 128,1	
02711	0774	00	4	02744		AXT REPT-3,4	ADDRESS OF NEXT SECTION
02712	0634	00	4	05467		SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
02713	0500	00	0	71361	REP	CLA FIX+24	L 313131313131
02714	-0765	00	0	00044		LGR 36	SHIFT
02715	0763	00	0	00043		LLS 35	
02716	0767	00	0	00001		ALS 1	

02717	0771	00	0	00001	ARS	1	
02720	-0340	00	0	71361	LAS	FIX+24	L 313131313131
02721	0020	00	0	02723	TRA	*+2	ERROR
02722	0020	00	0	02725	TRA	*+3	OK
02723	-0625	00	0	05461	STL	ADDR1	
02724	0020	00	0	05457	TRA	GOOF	ERROR-LGR,LLS,ALS ARS OR LAS DID NOT WORK
02725	-0737	00	4	00000	PDC	0,4	LOAD XRC 4647
02726	0737	00	2	00000	PAC	0,2	LOAD XRB 4647
02727	0600	00	0	71322	STZ	SAVE2	
02730	-0634	00	4	71322	SXD	SAVE2,4	BUILD UP WORD
02731	0630	00	0	71322	STP	SAVE2	IN SAVE2
02732	0634	00	2	71322	SXA	SAVE2,2	SAVE2{304647004647-NOW
02733	0500	00	0	02735	CLA	CHECK	
02734	0020	00	0	02736	TRA	*+2	
02735	+304647004647				CHECK	OCT 304647004647	CORRECT CONSTANT
02736	0340	00	0	71322	CAS	SAVE2	SH HOLD SAME INFO AS CHECK
02737	0020	00	0	02741	TRA	*+2	ERROR
02740	0020	00	0	02743	TRA	*+3	
02741	-0625	00	0	05461	STL	ADDR1	
02742	0020	00	0	05457	TRA	GOOF	ERROR-PDC, OR PAC NOT WORKING
02743	2	00001	1	02713	TIX	REP,1,1	REPEAT 200 TIMES
02744	0774	00	1	00200	AXT	128,1	
02745	0774	00	4	02773	AXT	OHOH-3,4	ADDRESS OF NEXT SECTION
02746	0634	00	4	05467	SXA	ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
02747	0502	00	0	02735	REPT	CLS CHECK	SH BRING IN 704647004647
02750	-0625	00	0	05461	STL	ADDR1	
02751	0120	00	0	05457	TPL	GOOF	ACC SHBE MINUS
02752	0760	00	0	00003	SSP		
02753	0760	00	0	00010	RND		ACC SHOULD NOT CHANGE
02754	0340	00	0	71322	CAS	SAVE2	L 304647004647
02755	0020	00	0	02757	TRA	*+2	ERROR
02756	0020	00	0	02761	TRA	*+3	OK
02757	-0625	00	0	05461	STL	ADDR1	
02760	0020	00	0	05457	TRA	GOOF	ERROR-CLS,SSP, OR RND NOT WORKING
02761	0760	00	0	00006	COM		ACC SHBE 4731310773130
02762	0320	00	0	02766	ANS	*+4	
02763	0767	00	0	00002	ALS	2	
02764	0771	00	0	00002	ARS	2	
02765	0020	00	0	02767	TRA	*+2	
02766	+077777777777				OCT	777777777777	EXCEPT FOR A BIT IN SGN POS
02767	-0400	00	0	02766	SBM	*-1	
02770	-0625	00	0	05461	STL	ADDR1	
02771	-0100	00	0	05457	TNZ	GOOF	ACC SHOULD NOW BE ZERO
02772	2	00001	1	02747	TIX	REPT,1,1	REPEAR 200 TIMES
02773	0774	00	1	00200	AXT	128,1	
02774	0774	00	4	03031	AXT	NICE-3,4	ADDRESS OF NEXT SECTION
02775	0634	00	4	05467	SXA	ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR

02776	0500	00	0	72016	OHOH	CLA ZERO	L +0
02777	-0760	00	0	00003		SSM	
03000	-0120	00	0	03003		TMI +3	OK-ACC SHBE-0
03001	-0625	00	0	05461		STL ADDR1	
03002	0020	00	0	05457		TRA GOOF	ERROR-SSM NOT WORKING
03003	0500	00	0	71566		CLA ONES	L ALL ONES
03004	0734	00	4	00000		PAX 0,4	L 7777
03005	-0734	00	2	00000		PDX 0,2	L 7777
03006	-0634	00	4	03010		SXD +2,4	
03007	0020	00	0	03011		TRA +2	
03010	+000000000000					OCT 0	
03011	-0754	00	2	00000		PXD 0,2	ACC SH HAVE 7777 IN DECR
03012	0402	00	0	03010		SUB *-2	
03013	-0625	00	0	05461		STL ADDR1	
03014	-0100	00	0	05457		TNZ GOOF	ERROR-PDX,OR PXD NOT WORKNG
03015	-0754	00	4	00000		PXD 0,4	L 7777
03016	0402	00	0	03010		SUB *-6	
03017	-0625	00	0	05461		STL ADDR1	
03020	-0100	00	0	05457		TNZ GOOF	ERROR PAX NOT WORKING
03021	-0774	00	2	06767		AXC 3575,2	L 01011
03022	0754	00	2	00000		PXA 0,2	
03023	0402	00	0	03025		SUB +2	
03024	0020	00	0	03026		TRA +2	
03025	+000000001011				SIZE	OCT 1011	
03026	-0625	00	0	05461		STL ADDR1	
03027	-0100	00	0	05457		TNZ GOOF	ERROR AXC NOT WORKING
03030	2 00001	1	1	02776		TIX OHOH,1,1	REPEAT 200 TIMES
03031	0774	00	1	00200		AXT 128,1	
03032	0774	00	4	03113		AXT CRCTS-12,4	ADDRESS OF NEXT SECTION
03033	0634	00	4	05467		SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
03034	0560	00	0	71427	NICE	LDQ FIX+62	L 3777777777
03035	0767	00	0	00002		ALS 2	CLEAR P,Q IN CASE
03036	0771	00	0	00002		ARS 2	OF BITS
03037	0500	00	0	72016		CLA ZERO	L+0
03040	0221	00	0	71331		DVP FIX	L 010101010101
03041	0402	00	0	03043		SUB +2	
03042	0020	00	0	03044		TRA +2	
03043	+004040404040					OCT 4040404040	
03044	-0625	00	0	05461		STL ADDR1	
03045	-0100	00	0	05457		TNZ GOOF	ERROR-ACC DOES NOT HOLD CORRECT REMAINDER
03046	0131	00	0	00000		XCA	
03047	0402	00	0	03051		SUB +2	
03050	0020	00	0	03052		TRA +2	
03051	+0000000000037					OCT 37	
03052	-0625	00	0	05461		STL ADDR1	ERROR-MQ DID NOT
03053	-0100	00	0	05457		TNZ GOOF	HOLD CORRECT RESULT, DIV.
03054	0500	00	0	72016		CLA ZERO	L+0
03055	0560	00	0	71427		LDQ FIX+62	L 377777777777
03056	0200	00	0	71332		MPY FIX+1	L 020202020202

03057	0400	00	0	03061	ADD	*+2	
03060	0020	00	0	03062	TRA	*+2	
03061	+020202020201				OCT	020202020201	
03062	-0625	00	0	05461	STL	ADDR1	
03063	-0100	00	0	05457	TNZ	GOOF	ERROR-HIGH ORDER BITS IN ACC NOT CORRECT
03064	0131	00	0	00000	XCA		
03065	0400	00	0	03067	ADD	*+2	
03066	0020	00	0	03070	TRA	*+2	
03067	+357575757576				OCT	357575757576	
03070	-0625	00	0	05461	STL	ADDR1	
03071	-0100	00	0	05457	TNZ	GOOF	ERROR-LOW ORDER BITS IN MQ NOT CORRECT
03072	0500	00	0	72016	CLA	ZERO	
03073	0560	00	0	71566	LDQ	ONES	L 7777777777
03074	-0200	00	0	71632	MPR	TWO	L+2
03075	0760	00	0	00003	SSP		
03076	0340	00	0	71632	CAS	TWO	L+2
03077	0020	00	0	03101	TRA	*+2	ERROR
03100	0020	00	0	03103	TRA	*+3	OK
03101	-0625	00	0	05461	STL	ADDR1	ACC SHOULD HOLD 2
03102	0020	00	0	05457	TRA	GOOF	ERROR-MPR FAILED TO HAVE CORRECTS CONTENTS IN ACC
03103	0131	00	0	00000	XCA		
03104	0760	00	0	00003	SSP		
03105	0400	00	0	72017	ADD	ONE	L+1
03106	-0760	00	0	00003	SSM		
03107	0402	00	0	71566	SUB	ONES	L ALL ONES
03110	-0625	00	0	05461	STL	ADDR1	
03111	-0100	00	0	05457	TNZ	GOOF	ERROR-MPR FAILED TO HAVE CORRECT CONTENTS IN MQ
03112	2 00001	1	03034		TIX	NICE,1,1	REPEAT 200 TIMES
03113	0774	00	2	00200	AXT	128,2	
03114	0774	00	4	03205	AXT	HELP-12,4	ADDRESS OF NEXT SECTION
03115	0634	00	4	05467	SXA	ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
03116	0500	00	0	72035	CLA	1ST	L+010304051011
03117	0400	00	0	72036	ADD	2ND	L+061101051103
03120	0114	06	1	72023	CVR	TABLE-12,1,6	ACC SH HOLD 2020202020
03121	0402	00	0	71350	SUB	FIX+15	L 2020202020
03122	-0625	00	0	05461	STL	ADDR1	
03123	-0100	00	0	05457	TNZ	GOOF	CVR INST. NOT WORKING
03124	0754	00	1	00000	PXA	0,1	
03125	0402	00	0	03127	SUB	*+2	
03126	0020	00	0	03130	TRA	*+2	
03127	0000	00	0	72035	HTR	TABLE-2	
03130	-0625	00	0	05461	STL	ADDR1	ERROR-XRA DID NOT
03131	-0100	00	0	05457	TNZ	GOOF	CONTAIN ADDR-TABLES+5
03132	0500	00	0	72035	CLA	1ST	L+010304051011
03133	0400	00	0	72036	ADD	2ND	L+061101051103
03134	0131	00	0	00000	XCA		
03135	-0154	06	1	72036	CRQ	TBLE1-7,1,6	MQ SH HOLD 2020202020
03136	0131	00	0	00000	XCA		
03137	0402	00	0	03143	SUB	*+4	L 000005070070

CRCTS

03140	-0625	00	0	05461	STL	ADDR1	
03141	-0100	00	0	05457	TNZ	GOOF	CRQ INST. NOT WORKING
03142	0020	00	0	03144	TRA	*+2	
03143	+202020202020				OCT	202020202020	
03144	0754	00	1	00000	PXA	0,1	
03145	0402	00	0	03151	SUB	*+4	
03146	-0625	00	0	05461	STL	ADDR1	ERROR-XRA DID NOT
03147	-0100	00	0	05457	TNZ	GOOF	CONTAIN ADDR-TABLE+5
03150	0020	00	0	03152	TRA	*+2	
03151	0000	00	0	72031	CRCT1	HTR	TABLE-6
03152	-0754	00	0	00000	PXD		
03153	0560	00	0	72053	LDQ	K16	L 010203040506
03154	-0114	06	1	72053	CAQ	K16,1,6	CONVERT FULL WORD
03155	0602	00	0	71320	SLW	SAVE	SAVE ACC
03156	0771	00	0	00001	ARS	1	SHIFT Q TO P
03157	-0760	00	0	00001	PBT		
03160	0020	00	0	03162	TRA	*+2	
03161	0020	00	0	03164	TRA	*+3	YES-P BIT-OK
03162	-0625	00	0	05461	STL	ADDR1	ERROR HERE INDICATES
03163	0020	00	0	05457	TRA	GOOF	NO Q BIT
03164	0500	00	0	71320	CLA	SAVE	BRING BACK TO ACC
03165	0402	00	0	03171	SUB	*+4	
03166	-0625	00	0	05461	STL	ADDR1	
03167	-0100	00	0	05457	TNZ	GOOF	ERROR WRONG ANSWER IN ACCUMULATOR
03170	0020	00	0	03172	TRA	*+2	
03171	-2	50000	5	34402	TNX	6*K16,5,20480	
03172	0131	00	0	00000	XCA		
03173	0402	00	0	72053	SUB	K16	
03174	-0625	00	0	05461	STL	ADDR1	
03175	-0100	00	0	05457	TNZ	GOOF	ERROR MQ NOT CORRECT
03176	0754	00	1	00000	PXA	0,1	
03177	0402	00	0	03203	SUB	*+4	CORRECT CNTS XRA
03200	-0625	00	0	05461	STL	ADDR1	
03201	-0100	00	0	05457	TNZ	GOOF	ERROR-XRA DID NOT HOLD CORRECT INFO
03202	0020	00	0	03204	TRA	*+2	
03203	0000	00	0	72053	HTR	K16	CORRECT CONTENTS XRA
03204	2	00001	2	03116	TIX	CRCTS-9,2,1	REPEAT 200 TIMES
03205	0074	00	2	10475	TSX	ECHOS,2	OUT TO FROM ECHO IMAGE
03206	0074	00	2	10522	TSX	ECHCS,2	
03207	0074	00	2	10547	TSX	ECHES,2	
03210	0774	00	2	00000	AXT	0,2	
03211	0534	00	1	72015	LXA	TWTWO,1	L+22
03212	0754	00	1	00000	PXA	0,1	
03213	0400	00	0	72017	ADD	ONE	L+1
03214	0621	00	0	06342	STA	WDNO	SET WDNO CONSTANT
03215	0500	00	0	72017	CLA	ONE	L+1
03216	0621	00	0	06343	STA	RECNO	SET REC NO CONSTANT



\*COMPARISON-FOR READ PRINTER-WRITE TAPE AND  
\*READ PRINTER SECTION

03217 -0520 00 0 73007 NZT PRCHA TEST FOR PRINTER A  
03220 0020 00 0 03231 TRA \*+9

03221 0500 00 1 72011 HELP CLA ECHO+18,1 WORD READ  
03222 0560 00 1 71507 LDQ WRIT2+18,1 WORD WRITTEN  
03223 0340 00 1 71507 CAS WRIT2+18,1  
03224 0020 00 0 03226 TRA \*+2 ERROR  
03225 0020 00 0 03230 TRA \*+3 OK  
03226 0074 00 4 06266 TSX ERROR-2,4  
03227 0761 00 0 71637 NOP PREA  
03230 2 00001 1 03221 TIX HELP,1,1

03231 -0520 00 0 73013 NZT PRCHC TEST FOR PRINTER C  
03232 0020 00 0 03244 TRA \*+10

03233 0774 00 1 00022 AXT 18,1  
03234 0500 00 1 73142 CLA ECHOC+18,1 WORD READ  
03235 0560 00 1 71507 LDQ WRIT2+18,1 WORD WRITTEN  
03236 0340 00 1 71507 CAS WRIT2+18,1  
03237 0020 00 0 03241 TRA \*+2 ERROR  
03240 0020 00 0 03243 TRA \*+3 OK  
03241 0074 00 4 06266 TSX ERROR-2,4  
03242 0761 00 0 71640 NOP PREC  
03243 2 00001 1 03234 TIX \*-7,1,1

03244 -0520 00 0 73017 NZT PRCHE TEST FOR PRINTER E  
03245 0020 00 0 03257 TRA \*+10

03246 0774 00 1 00022 AXT 18,1  
03247 0500 00 1 73170 CLA ECHOE+18,1 WORD READ  
03250 0560 00 1 71507 LDQ WRIT2+18,1 WORD WRITTEN  
03251 0340 00 1 71507 CAS WRIT2+18,1  
03252 0020 00 0 03254 TRA \*+2 ERROR  
03253 0020 00 0 03256 TRA \*+3 OK  
03254 0074 00 4 06266 TSX ERROR-2,4  
03255 0761 00 0 71641 NOP PREE  
03256 2 00001 1 03247 TIX \*-7,1,1  
03257 0074 00 4 06275 TSX OK,4  
03260 0020 00 0 02533 TRA OKK-2  
03261 0761 00 0 00000 NOP

03262 0760 00 0 00163 SWT 3  
03263 0020 00 0 03265 TRA \*+2  
03264 0020 00 0 03270 TRA \*+4

\* PRINT --

\*\* 00000 WRITE TAPE AND READ PRINTER-SECTION 14 COMPLETE

03265 0766 00 0 01361 WPRA PRINT SECTION COMPLETE  
03266 0760 00 0 01363 SPRA 3  
03267 0540 00 0 77771 RCHA SECTN+13



\*COMPARISON FOR READ TAPE-WRITE PRINTER  
 \*BINARY AND READ TAPE SECTION

03270	0774	00	1	00000		AXT 0,1	L +0
03271	0774	00	2	00007		AXT 7,2	L +7
03272	0500	00	0	72017		CLA ONE	L +1
03273	0601	00	0	06342		STO WDNO	SET WDNO CONST
03274	0754	00	2	00000		PXA 0,2	WORD COUNT
03275	0400	00	0	72017		ADD ONE	L +1
03276	0601	00	0	06343		STO RECNO	SET RECNO CONST
03277	0020	00	0	03301		TRA *+2	
03300	314524600111					BCD 1IND 19	
03301	-0520	00	0	73022		NZT TPCHB	TEST FOR TAPE-CHAN B
03302	0020	00	0	03312		TRA *+8	
03303	0500	00	0	73753	FUN	CLA RDFLD	WORD READ
03304	0560	00	0	72016		LDQ ZERO	CORRECT WORD
03305	0340	00	0	72016		CAS ZERO	
03306	0020	00	0	03310		TRA *+2	ERROR
03307	0020	00	0	03312		TRA *+3	OK
03310	0074	00	4	06266		TSX ERROR-2,4	ERROR OCCURRED WITH
03311	0761	00	0	71646		NOP TP19B+1	IND 19 ON AND S AND 2 INDS ON
03312	-0520	00	0	73023		NZT TPCHD	TEST FOR TAPE-CHAN D
03313	0020	00	0	03323		TRA *+8	NO
03314	0500	00	0	74353		CLA RFCD	WORD READ
03315	0560	00	0	72016		LDQ ZERO	CORRECT WORD
03316	0340	00	0	72016		CAS ZERO	
03317	0020	00	0	03321		TRA *+2	ERROR
03320	0020	00	0	03323		TRA *+3	OK
03321	0074	00	4	06266		TSX ERROR-2,4	
03322	0761	00	0	71647		NOP TP19D+1	
03323	-0520	00	0	73024		NZT TPCHF	TEST FOR TAPE-CHAN F
03324	0020	00	0	03334		TRA *+8	NO
03325	0500	00	0	74753		CLA RFEF	WORD READ
03326	0560	00	0	72016		LDQ ZERO	CORRECT WORD
03327	0340	00	0	72016		CAS ZERO	
03330	0020	00	0	03332		TRA *+2	ERROR
03331	0020	00	0	03334		TRA *+3	OK
03332	0074	00	4	06266		TSX ERROR-2,4	
03333	0761	00	0	71650		NOP TP19F+1	
03334	2 00001	2	03335			TIX *+1,2,1	DECR REC NO
03335	0774	00	1	00052		AXT 42,1	L 52
03336	0754	00	1	00000		PXA 0,1	
03337	0400	00	0	72017		ADD ONE	L +1
03340	0601	00	0	06342		STO WDNO	SET WDNO CONSTANT

03341	-0520	00	0	73022	NZT	TPCHB	TAPE-CHAN B
03342	0020	00	0	03353	TRA	*+9	NO
03343	0500	00	1	74026	CLA	RDFLD+43,1	WORD READ
03344	0560	00	1	73426	LDQ	WRFLD+43,1	CORRECT WORD
03345	0340	00	1	73426	CAS	WRFLD+43,1	
03346	0020	00	0	03350	TRA	*+2	ERROR
03347	0020	00	0	03352	TRA	*+3	OK
03350	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH S
03351	0761	00	0	71646	NOP	TP19B+1	TGR ON-AFTER TCH+IND 19
03352	2 00001	1	1	03343	TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
03353	-0520	00	0	73023	NZT	TPCHD	TAPE-CHAN D
03354	0020	00	0	03366	TRA	*+10	NO
03355	0774	00	1	00052	AXT	42,1	
03356	0500	00	1	74426	CLA	RFCD+43,1	WORD READ
03357	0560	00	1	73426	LDQ	WRFLD+43,1	CORRECT WORD
03360	0340	00	1	73426	CAS	WRFLD+43,1	
03361	0020	00	0	03363	TRA	*+2	ERROR
03362	0020	00	0	03365	TRA	*+3	OK
03363	0074	00	4	06266	TSX	ERROR-2,4	
03364	0761	00	0	71647	NOP	TP19D+1	
03365	2 00001	1	1	03356	TIX	*-7,1,1	
03366	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
03367	0020	00	0	03401	TRA	*+10	NO
03370	0774	00	1	00052	AXT	42,1	
03371	0500	00	1	75026	CLA	RFEF+43,1	WORD READ
03372	0560	00	1	73426	LDQ	WRFLD+43,1	CORRECT WORD
03373	0340	00	1	73426	CAS	WRFLD+43,1	
03374	0020	00	0	03376	TRA	*+2	ERROR
03375	0020	00	0	03400	TRA	*+3	OK
03376	0074	00	4	06266	TSX	ERROR-2,4	
03377	0761	00	0	71650	NOP	TP19F+1	
03400	2 00001	1	1	03371	TIX	*-7,1,1	
03401	2 00001	2	1	03402	TIX	*+1,2,1	DECREMENT RECORD NO
03402	-0520	00	0	73022	NZT	TPCHB	TAPE-CHAN B
03403	0020	00	0	03415	TRA	*+10	NO
03404	0774	00	1	00052	AXT	42,1	L 52
03405	0500	00	1	74100	CLA	RDFLD+85,1	WORD READ
03406	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03407	0340	00	0	72016	CAS	ZERO	
03410	0020	00	0	03412	TRA	*+2	ERROR
03411	0020	00	0	03414	TRA	*+3	OK
03412	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH
03413	0761	00	0	71646	NOP	TP19B+1	S IND AND IND 19 ON
03414	2 00001	1	1	03405	TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
03415	-0520	00	0	73023	NZT	TPCHD	TAPE-CHAN D
03416	0020	00	0	03430	TRA	*+10	NO
03417	0774	00	1	00052	AXT	42,1	

03420	0500	00	1	74500	CLA	RFCD+85,1	WORD READ
03421	0560	00	0	72016	LDQ	ZERO	
03422	0340	00	0	72016	CAS	ZERO	
03423	0020	00	0	03425	TRA	*+2	ERROR
03424	0020	00	0	03427	TRA	*+3	OK
03425	0074	00	4	06266	TSX	ERROR-2,4	
03426	0761	00	0	71647	NOP	TP19D+1	
03427	2 00001	1	1	03420	TIX	*-7,1,1	
03430	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
03431	0020	00	0	03443	TRA	*+10	NO
03432	0774	00	1	00052	AXT	42,1	
03433	0500	00	1	75100	CLA	RFEF+85,1	WORD READ
03434	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03435	0340	00	0	72016	CAS	ZERO	
03436	0020	00	0	03440	TRA	*+2	ERROR
03437	0020	00	0	03442	TRA	*+3	OK
03440	0074	00	4	06266	TSX	ERROR-2,4	
03441	0761	00	0	71650	NOP	TP19F+1	
03442	2 00001	1	1	03433	TIX	*-7,1,1	
03443	2 00001	2	1	03444	TIX	*+1,2,1	DECREMENT RECORD NO
03444	-0520	00	0	73022	NZT	TPCHB	TAPE-CHAN B
03445	0020	00	0	03457	TRA	*+10	NO
03446	0774	00	1	00052	AXT	42,1	
03447	0500	00	1	74152	CLA	RDFLD+127,1	WORD READ
03450	0560	00	1	73552	LDQ	WRFLD+127,1	CORRECT WORD
03451	0340	00	1	73552	CAS	WRFLD+127,1	
03452	0020	00	0	03454	TRA	*+2	ERROR
03453	0020	00	0	03456	TRA	*+3	OK
03454	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH
03455	0761	00	0	71646	NOP	TP19B+1	INDS S AND 1 ON
03456	2 00001	1	1	03447	TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
03457	-0520	00	0	73023	NZT	TPCHD	TAPE-CHAN D
03460	0020	00	0	03472	TRA	*+10	NO
03461	0774	00	1	00052	AXT	42,1	
03462	0500	00	1	74552	CLA	RFCD+127,1	WORD READ
03463	0560	00	1	73552	LDQ	WRFLD+127,1	CORRECT WORD
03464	0340	00	1	73552	CAS	WRFLD+127,1	
03465	0020	00	0	03467	TRA	*+2	ERROR
03466	0020	00	0	03471	TRA	*+3	OK
03467	0074	00	4	06266	TSX	ERROR-2,4	
03470	0761	00	0	71647	NOP	TP19D+1	
03471	2 00001	1	1	03462	TIX	*-7,1,1	
03472	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
03473	0020	00	0	03505	TRA	*+10	NO
03474	0774	00	1	00052	AXT	42,1	
03475	0500	00	1	75152	CLA	RFEF+127,1	WORD READ
03476	0560	00	1	73552	LDQ	WRFLD+127,1	CORRECT WORD
03477	0340	00	1	73552	CAS	WRFLD+127,1	

03500	0020	00	0	03502	TRA	*+2	ERROR
03501	0020	00	0	03504	TRA	*+3	OK
03502	0074	00	4	06266	TSX	ERROR-2,4	
03503	0761	00	0	71650	NOP	TP19F+1	
03504	2	00001	1	03475	TIX	*-7,1,1	
03505	2	00001	2	03506	TIX	*+1,2,1	DECREMENT RECORD NO
03506	-0520	00	0	73022	NZT	TPCHB	TAPE-CHAN B
03507	0020	00	0	03521	TRA	*+10	NO
03510	0774	00	1	00052	AXT	42,1	L 52
03511	0500	00	1	74224	CLA	RDFLD+169,1	WORD READ
03512	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03513	0340	00	0	72016	CAS	ZERO	
03514	0020	00	0	03516	TRA	*+2	ERROR
03515	0020	00	0	03520	TRA	*+3	OK
03516	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH
03517	0761	00	0	71646	NOP	TP19B+1	INDS S AND 1 ON+IND 19
03520	2	00001	1	03511	TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
03521	-0520	00	0	73023	NZT	TPCHD	TAPE-CHAN D
03522	0020	00	0	03534	TRA	*+10	NO
03523	0774	00	1	00052	AXT	42,1	
03524	0500	00	1	74624	CLA	RFCD+169,1	WORD READ
03525	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03526	0340	00	0	72016	CAS	ZERO	
03527	0020	00	0	03531	TRA	*+2	ERROR
03530	0020	00	0	03533	TRA	*+3	OK
03531	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH
03532	0761	00	0	71647	NOP	TP19D+1	
03533	2	00001	1	03524	TIX	*-7,1,1	
03534	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
03535	0020	00	0	03547	TRA	*+10	NO
03536	0774	00	1	00052	AXT	42,1	
03537	0500	00	1	75224	CLA	RFEF+169,1	WORD READ
03540	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03541	0340	00	0	72016	CAS	ZERO	
03542	0020	00	0	03544	TRA	*+2	ERROR
03543	0020	00	0	03546	TRA	*+3	OK
03544	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH
03545	0761	00	0	71650	NOP	TP19F+1	
03546	2	00001	1	03537	TIX	*-7,1,1	
03547	2	00001	2	03550	TIX	*+1,2,1	DECREMENT RECORD NO
03550	-0520	00	0	73022	NZT	TPCHB	TAPE-CHAN B
03551	0020	00	0	03563	TRA	*+10	NO
03552	0774	00	1	00052	AXT	42,1	L 52
03553	0500	00	1	74276	CLA	RDFLD+211,1	WORD READ
03554	0560	00	1	73676	LDQ	WRFLD+211,1	CORRECT WORD
03555	0340	00	1	73676	CAS	WRFLD+211,1	
03556	0020	00	0	03560	TRA	*+2	ERROR
03557	0020	00	0	03562	TRA	*+3	OK

03560	0074	00	4	06266	TSX	ERROR-2,4	
03561	0761	00	0	71646	NOP	TP19B+1	
03562	2	00001	1	03553	TIX	*-7,1,1	
03563	-0520	00	0	73023	NZT	TPCHD	TAPE-CHAN D
03564	0020	00	0	03576	TRA	*+10	NO
03565	0774	00	1	00052	AXT	42,1	
03566	0500	00	1	74676	CLA	RFCD+211,1	WORD READ
03567	0560	00	1	73676	LDQ	WRFLD+211,1	CORRECT WORD
03570	0340	00	1	73676	CAS	WRFLD+211,1	
03571	0020	00	0	03573	TRA	*+2	ERROR
03572	0020	00	0	03575	TRA	*+3	OK
03573	0074	00	4	06266	TSX	ERROR-2,4	
03574	0761	00	0	71647	NOP	TP19D+1	
03575	2	00001	1	03566	TIX	*-7,1,1	
03576	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
03577	0020	00	0	03611	TRA	*+10	NO
03600	0774	00	1	00052	AXT	42,1	
03601	0500	00	1	75276	CLA	RFEF+211,1	WORD READ
03602	0560	00	1	73676	LDQ	WRFLD+211,1	CORRECT WORD
03603	0340	00	1	73676	CAS	WRFLD+211,1	
03604	0020	00	0	03606	TRA	*+2	ERROR
03605	0020	00	0	03610	TRA	*+3	OK
03606	0074	00	4	06266	TSX	ERROR-2,4	
03607	0761	00	0	71650	NOP	TP19F+1	
03610	2	00001	1	03601	TIX	*-7,1,1	
03611	2	00001	1	03612	TIX	*+1,1,1	DECREMENT RECORD NO
03612	0774	00	1	00055	AXT	45,1	L 55
03613	0754	00	1	00000	PXA	0,1	
03614	0400	00	0	72017	ADD	ONE	
03615	0621	00	0	06342	STA	WDNO	
03616	-0520	00	0	73022	NZT	TPCHB	TEST FOR TAPE CHAN B
03617	0020	00	0	03630	TRA	*+9	NO
03620	0500	00	1	74353	CLA	RDFLD+256,1	WORD READ
03621	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03622	0340	00	0	72016	CAS	ZERO	
03623	0020	00	0	03625	TRA	*+2	ERROR
03624	0020	00	0	03627	TRA	*+3	OK
03625	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WITH
03626	0761	00	0	71646	NOP	TP19B+1	NO INDS ON+IND 19
03627	2	00001	1	03620	TIX	*-7,1,1	REUTRN TO CHECK ALL WORDS
03630	-0520	00	0	73023	NZT	TPCHD	TEST FOR TAPE CHAN D
03631	0020	00	0	03643	TRA	*+10	NO
03632	0774	00	1	00055	AXT	45,1	
03633	0500	00	1	74753	CLA	RFCD+256,1	WORD READ
03634	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03635	0340	00	0	72016	CAS	ZERO	
03636	0020	00	0	03640	TRA	*+2	ERROR
03637	0020	00	0	03642	TRA	*+3	OK

03640	0074	00	4	06266	TSX	ERROR-2,4	
03641	0761	00	0	71647	NOP	TP19D+1	
03642	2	00001	1	03633	TIX	*-7,1,1	
03643	-0520	00	0	73024	NZT	TPCHF	TEST FOR TAPE CHAN F
03644	0020	00	0	03656	TRA	*+10	NO
03645	0774	00	1	00055	AXT	45,1	
03646	0500	00	1	75353	CLA	RFEF+256,1	WORD READ
03647	0560	00	0	72016	LDQ	ZERO	CORRECT WORD
03650	0340	00	0	72016	CAS	ZERO	
03651	0020	00	0	03653	TRA	*+2	ERROR
03652	0020	00	0	03655	TRA	*+3	OK
03653	0074	00	4	06266	TSX	ERROR-2,4	
03654	0761	00	0	71650	NOP	TP19F+1	
03655	2	00001	1	03646	TIX	*-7,1,1	
03656	0074	00	4	06344	TSX	RDNCK,4	TEST REDUNDANCY-
03657	0761	00	0	03301	NOP	FUN-2	READ TAPE WITH IND 19
03660	0020	00	0	03662	TRA	*+2	
03661	314663606060				BCD	1IOT	
03662	0760	00	0	00005	IOT		TEST I/O TGR
03663	0020	00	0	03665	TRA	*+2	ERROR-SH BE OFF
03664	0020	00	0	03667	TRA	*+3	
03665	0074	00	4	06267	TSX	ERROR-1,4	
03666	-3	00000	4	03662	TXL	*-4,4,0	
03667	0074	00	4	06275	TSX	OK,4	
03670	0020	00	0	03270	TRA	FUN-11	
03671	0761	00	0	00000	NOP		
03672	0760	00	0	00163	SWT	3	
03673	0020	00	0	03675	TRA	*+2	
03674	0020	00	0	03700	TRA	*+4	
* PRINT --							
** 00000 WRITE PR BINARY AND READ TAPE-IND 19-SECTION 15 COMPLETE							
03675	0766	00	0	01361	WPRA		PRINT SECTION COMPLETE
03676	0760	00	0	01363	SPRA	3	
03677	0540	00	0	77772	RCHA	SECTN+14	
03700	0074	00	4	05544	TSX	CTX,4	
03701	0037	64	0	03701	HTR	*,0,NOISE	



\*READ TAPE-ALL CHANNELS

03702	-0520	00	0	73011		NZT TPCHA	TAPE-CHAN A
03703	0020	00	0	03706		TRA *+3	NO
03704	0764	00	0	01200	OOK	BSRA	
03705	0764	00	0	01200		BSRA	PREPARE TO READ
03706	-0520	00	0	73022		NZT TPCHB	TAPE-CHAN B
03707	0020	00	0	03711		TRA *+2	NO
03710	0764	00	0	02200		BSRB	
03711	-0520	00	0	73015		NZT TPCHC	TAPE-CHAN C
03712	0020	00	0	03715		TRA *+3	NO
03713	0764	00	0	03200		BSRC	
03714	0764	00	0	03200		BSRC	
03715	-0520	00	0	73023		NZT TPCHD	TAPE-CHAN D
03716	0020	00	0	03720		TRA *+2	NO
03717	0764	00	0	04200		BSRD	
03720	-0520	00	0	73021		NZT TPCHE	TAPE-CHAN E
03721	0020	00	0	03724		TRA *+3	NO
03722	0764	00	0	05200		BSRE	
03723	0764	00	0	05200		BSRE	
03724	-0520	00	0	73024		NZT TPCHF	TAPE-CHAN F
03725	0020	00	0	03727		TRA *+2	
03726	0764	00	0	06200		BSRF	
03727	-0520	00	0	73011		NZT TPCHA	TAPE-CHAN A
03730	0020	00	0	03733		TRA *+3	NO
03731	0762	00	0	01220		RTBA	READ 2-40 WORD REC
03732	0540	00	0	72033		RCHA SRD1	
03733	-0520	00	0	73022		NZT TPCHB	TAPE-CHAN B
03734	0020	00	0	03737		TRA *+3	NO
03735	0762	00	0	02220		RTBB	READ 1-300 WORD REC
03736	-0540	00	0	72032		RCHB SRD	
03737	-0520	00	0	73023		NZT TPCHD	TAPE-CHAN D
03740	0020	00	0	03743		TRA *+3	NO
03741	0762	00	0	04220		RTBD	
03742	-0541	00	0	73100		RCHD SRD2	READ 1-300 WORD REC
03743	-0520	00	0	73024		NZT TPCHF	TAPE-CHAN F
03744	0020	00	0	03747		TRA *+3	NO

03745	0762	00	0	06220	RTBF	
03746	-0542	00	0	73102	RCHF SRD3	READ 1-300 WORD REC.
03747	-0520	00	0	73015	NZT TPCHC	TAPE-CHAN C
03750	0020	00	0	03753	TRA *+3	NO
03751	0762	00	0	03220	RTBC	
03752	0541	00	0	73101	RCHC SRD4	READ 2-40 WORD REC
03753	-0520	00	0	73021	NZT TPCHE	TAPE-CHAN E
03754	0020	00	0	03757	TRA *+3	NO
03755	0762	00	0	05220	RTBE	
03756	0542	00	0	73103	RCHE SRD5	READ 2-40 WORD REC
03757	0020	00	0	03761	TRA *+2	
03760	442660312160				BCD 1MF IA	MF OPS IND ADDR- SAME AS PREVIOUS MF EXCEPT INSTRUCTIONS ARE IND ADDR
03761	0774	00	1	00200	AXT 128,1	
03762	0774	00	4	04012	AXT SOUND-3,4	ADDRESS OF NEXT SECTION
03763	0634	00	4	05467	SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
03764	0760	00	0	00000	NOISE CLM	
03765	0760	00	0	00002	CHS	
03766	0760	00	0	00003	SSP	MAKE ACC +ZERO
03767	-0625	60	0	02617	STL* WHOOP+3	THIS LOC+1-IN ADDR1
03770	-0100	60	0	02620	TNZ* WHOOP+4	ERROR ACC NOT CLEAR OR TNZ IND ADDR NOT WORKING
03771	-0625	60	0	02617	STL* WHOOP+3	SSP OR TMI IND
03772	-0120	60	0	02620	TMI* WHOOP+4	ADDR NOT WORKING
03773	0560	60	0	02623	LDQ* WHOOP+7	EFF ADDR FIX+2
03774	-0773	00	0	00003	RQL 3	MQ SHBE 303030303030
03775	-0600	60	0	02625	STQ* WHOOP+9	
03776	-0620	60	0	02626	SLQ* WHOOP+10	DECR 303030 IN DECR SAVE1
03777	-0625	60	0	02617	STL* WHOOP+3	
04000	0040	60	0	02620	TLQ* WHOOP+4	ERROR IN RQL-OR SLQ OR TLQ IND ADDR
04001	0162	60	0	72034	TQP* SRD1+1	
04002	-0625	60	0	02617	STL* WHOOP+3	ERROR TQP IND ADDR
04003	0020	60	0	02620	TRA* WHOOP+4	NOT WORKING
04004	-0130	00	0	00000	XCL	MQ ZERO-ACC 30303030303030
04005	0760	00	0	00001	LBT	
04006	0020	00	0	04011	TRA *+3	OK-NO BIT
04007	-0625	60	0	02617	STL* WHOOP+3	ERROR-HAS BIT-LBTOR
04010	0020	60	0	02620	TRA* WHOOP+4	XCL NOT WORKING
04011	2	00001	1	03764	TIX NOISE,1,1	REPEAT 200 TIMES
04012	0774	00	1	00200	AXT 128,1	
04013	0774	00	4	04060	AXT BAY-3,4	ADDRESS OF NEXT SECTION
04014	0634	00	4	05467	SXA ADDR2,4	SAVE ADDRESS FOR RETURN

							IF ERROR
04015	-0500	60	0	02645	SOUND	CAL* SKIP	
04016	0600	60	0	02646		STZ* SKIP+1	CLEAR SAVE2
04017	-0520	60	0	02647		NZT* SKIP+2	TEST FOR ZERO
04020	0520	60	0	02650		ZET* SKIP+3	
04021	0020	00	0	04023		TRA *+2	ERROR
04022	0020	00	0	04025		TRA *+3	OK
04023	-0625	60	0	02617		STL* WHOOP+3	ERROR-STZ,NZT OR ZET
04024	0020	60	0	02620		TRA* WHOOP+4	IND ADDR NOT WORKING
04025	0625	60	0	02655		STT* SKIP+8	BUILD UP
04026	0630	60	0	02656		STP* SKIP+9	WORD IN STORAGE
04027	0622	60	0	02657		STD* SKIP+10	FROM ACC, USING
04030	0621	60	0	02660		STA* SKIP+11	STO INSTRUCTIONS
							SAVE2 SH CONTAIN CNTS ACC
04031	-0760	00	0	00143		SLT 3	TURN OFF LIGHT 3
04032	0761	00	0	00000		NOP	
04033	-0760	00	0	00144		SLT 4	TURN OFF LIGHT 4
04034	0761	00	0	00000		NOP	
04035	-0340	60	0	02665		LAS* SKIP+16	STORAGE SHBE SAME AS ACC
04036	0020	00	0	04040		TRA *+2	ERROR
04037	0020	00	0	04042		TRA *+3	
04040	-0625	60	0	02617		STL* WHOOP+3	ERROR-STT,STP,STD,STA
04041	0020	60	0	02620		TRA* WHOOP+4	OR LOG COMP,IND ADDR NOT WORKING
04042	0401	60	0	02672		ADM* SKIP+21	L010101010101
04043	-0340	60	0	02673		LAS* SKIP+22	L313131313131
04044	0020	00	0	04046		TRA *+2	ERROR
04045	0020	00	0	04050		TRA *+3	OK
04046	-0625	60	0	02617		STL* WHOOP+3	ERROR-ADM,IND ADDR
04047	0020	60	0	02620		TRA* WHOOP+4	NOT WORKING
04050	-0760	00	0	00143		SLT 3	TEST LITE 3-SHBE OFF
04051	0020	00	0	04053		TRA *+2	OK
04052	0020	00	0	04055		TRA *+3	ERROR-LITE 3 NOT TURNED OFF
04053	-0760	00	0	00144		SLT 4	TEST LITE 4-SHBE OFF
04054	0020	00	0	04057		TRA *+3	OK
04055	-0625	60	0	02617		STL* WHOOP+3	ERROR-EITHER LITE 3 OR 4
04056	0020	60	0	02620		TRA* WHOOP+4	WERE NOT TURNED OFF
04057	2 00001	1	1	04015		TIX SOUND,1,1	REPEAT 200 TIMES
04060	0774	00	1	00200		AXT 128,1	
04061	0774	00	4	04112		AXT COVE-3,4	ADDRESS OF NEXT SECTION
04062	0634	00	4	05467		SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
04063	-0500	60	0	02713	BAY	CAL* REP	
04064	-0765	00	0	00044		LGR 36	SHIFT
04065	0763	00	0	00043		LLS 35	
04066	0767	00	0	00001		ALS 1	
04067	0771	00	0	00001		ARS 1	
04070	-0340	60	0	02720		LAS* REP+5	L313131313131
04071	0020	00	0	04073		TRA *+2	ERROR
04072	0020	00	0	04075		TRA *+3	OK
04073	-0625	60	0	02617		STL* WHOOP+3	ERROR-LGT,LLS,ALS,ARS
04074	0020	60	0	02620		TRA* WHOOP+4	OR LAS,IND ADDR

04075	-0737	00	4	00000		PDC 0,4	NOT WORKING
04076	0737	00	2	00000		PAC 0,2	LOAD XRC 4647
04077	0600	60	0	02727		STZ* REP+12	LOAD XRB 4647
04100	-0634	00	4	71322		SXD SAVE2,4	BIULD UP WORD
04101	0630	60	0	02731		STP* REP+14	IN SAVE 2
04102	0634	00	2	71322		SXA SAVE2,2	SAVE 2{304647004647-NOW
04103	0500	60	0	02733		CLA* CHECK-2	
04104	0340	60	0	02736		CAS* CHECK+1	SH HOLD SAME INFO AS CHECK
04105	0020	00	0	04107		TRA *+2	ERROR
04106	0020	00	0	04111		TRA *+3	OK
04107	-0625	60	0	02617		STL* WHOOP+3	ERROR-PDC, OR PAX
04110	0020	60	0	02620		TRA* WHOOP+4	NOT WORKING
04111	2	00001	1	04063		TIX BAY,1,1	REPEAT 200 TIMES
04112	0774	00	1	00200		AXT 128,1	
04113	0774	00	4	04137		AXT INLET-3,4	ADDRESS OF NEXT SECTION
04114	0634	00	4	05467		SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
04115	0502	60	0	02747	COVE	CLS* REPT	SH BRING IN 704647004647
04116	-0625	60	0	02617		STL* WHOOP+3	
04117	0120	60	0	02620		TPL* WHOOP+4	ACC SHBE MINUS
04120	0760	00	0	00003		SSP	
04121	0760	00	0	00010		RND	ACC SHOULD NOT CHANGE
04122	0340	60	0	02754		CAS* REPT+5	
04123	0020	00	0	04125		TRA *+2	ERROR
04124	0020	00	0	04127		TRA *+3	OK
04125	-0625	60	0	02617		STL* WHOOP+3	
04126	0020	60	0	02620		TRA* WHOOP+4	ERROR-SSP,RND OR CLS IND ADDR NOT WORKING
04127	0760	00	0	00006		COM	ACC SHBD 473130773130
04130	0320	60	0	02762		ANS* REPT+11	CONST LOC AT 0H 0H-6
04131	0767	00	0	00002		ALS 2	
04132	0771	00	0	00002		ARS 2	
04133	-0400	60	0	02767		SBM* OHOH-7	
04134	-0625	60	0	02617		STL* WHOOP+3	ERROR-SBM,ANS IND ADDR
04135	-0100	60	0	02620		TNZ* WHOOP+4	NOT WORKING-ACC SHBE ZERO
04136	2	00001	1	04115		TIX COVE,1,1	REPEAT 200 TIMES
04137	0774	00	1	00200		AXT 128,1	
04140	0774	00	4	04171		AXT FIORD-3,4	ADDRESS OF NEXT SECTION
04141	0634	00	4	05467		SXA ADDR2,4	SAVE ADDRESS FOR RETURN IF ERROR
04142	0500	60	0	02776	INLET	CLA* OHOH	L+0
04143	-0760	00	0	00003		SSM	
04144	-0120	00	0	04147		TMI *+3	OK-ACC SHBE 0
04145	-0625	60	0	02617		STL* WHOOP+3	
04146	0020	60	0	02620		TRA* WHOOP+4	ERROR-SSM NOT WORKING
04147	0500	60	0	03003		CLA* OHOH+5	L ALL ONES
04150	0734	00	4	00000		PAX 0,4	L7777
04151	-0734	00	2	00000		PDX 0,2	L 7777
04152	-0634	00	4	03010		SXD OHOH+10,4	
04153	-0754	00	2	00000		PXD 0,2	ACC SH HAVE 7777 IN DECR

04154	0402	60	0	03012	SUB*	OHOH+12	
04155	-0625	60	0	02617	STL*	WHOOB+3	ERROR-PDX,PXD, OR CLA,
04156	-0100	60	0	02620	TNZ*	WHOOB+4	SUB IND ADDR NOT WORKING
04157	-0754	00	4	00000	PXD	0,4	L7777
04160	0402	60	0	03012	SUB*	OHOH+12	
04161	-0625	60	0	02617	STL*	WHOOB+3	
04162	-0100	60	0	02620	TNZ*	WHOOB+4	ERROR-PAX NOT WORKING
04163	-0774	00	2	06767	AXC	3575,2	L 01011
04164	0754	00	2	00000	PXA	0,2	
04165	0402	60	0	03023	SUB*	SIZE-2	
04166	-0625	60	0	02617	STL*	WHOOB+3	ERROR-AXC OR
04167	-0100	60	0	02620	TNZ*	WHOOB+4	SUB IND ADDR NOT WORKING
04170	2	00001	1	04142	TIX	INLET,1,1	REPEAT 200 TIMES
04171	0774	00	1	00200	AXT	128,1	
04172	0774	00	4	04246	AXT	RCWTP-5,4	
04173	0634	00	4	05467	SXA	ADDR2,4	
04174	0560	60	0	03034	LDQ*	NICE	L 377777777777
04175	0767	00	0	00002	ALS	2	CLEAR P,Q IN CASE
04176	0771	00	0	00002	ARS	2	OF BITES
04177	0500	60	0	03037	CLA*	NICE+3	L+0
04200	0221	60	0	03040	DVP*	NICE+4	L 010101010101
04201	0402	60	0	03041	SUB*	NICE+5	
04202	-0625	60	0	02617	STL*	WHOOB+3	
04203	-0100	60	0	02620	TNZ*	WHOOB+4	ERROR-ACC DOES NOT HOLD CORRECT REMAINDER
04204	0131	00	0	00000	XCA		
04205	0402	60	0	03047	SUB*	NICE+11	
04206	-0625	60	0	02617	STL*	WHOOB+3	ERROR-MQ DID NOT HOLD
04207	-0100	60	0	02620	TNZ*	WHOOB+4	CORRECT RESULT,DIV.
04210	0500	60	0	03054	CLA*	NICE+16	L+0
04211	0560	60	0	03055	LDQ*	NICE+17	L 377777777777
04212	0200	60	0	03056	MPY*	NICE+18	L 020202020202
04213	0400	60	0	03057	ADD*	NICE+19	
04214	-0625	60	0	02617	STL*	WHOOB+3	ERROR-HIGH ORDER BITS
04215	-0100	60	0	02620	TNZ*	WHOOB+4	IN ACC NOT CORRECT
04216	0131	00	0	00000	XCA		
04217	0400	60	0	03065	ADD*	NICE+25	
04220	-0625	60	0	02617	STL*	WHOOB+3	ERROR-LOW ORDER BITS
04221	-0100	60	0	02617	TNZ*	WHOOB+3	IN MQ NOT CORRECT
04222	0500	60	0	03072	CLA*	NICE+30	
04223	0560	60	0	03073	LDQ*	NICE+31	L 777777777777
04224	-0200	60	0	03074	MPR*	NICE+32	L+2
04225	0760	00	0	00003	SSP		
04226	0340	60	0	03076	CAS*	NICE+34	L+2
04227	0020	00	0	04231	TRA	*+2	ERROR
04230	0020	00	0	04233	TRA	*+3	OK
04231	-0625	60	0	02617	STL*	WHOOB+3	ERROR-ACC SH HOLD 2
04232	0020	60	0	02620	TRA*	WHOOB+4	MPR-FAILED TO LEAVE CORRECT CONTENTS IN ACC
04233	0131	00	0	00000	XCA		

FIORD

04234	0760	00	0	00003	SSP	
04235	0400	60	0	03105	ADD*	CRCTS-18 L +1-MQ SH HOLD 7777777776
04236	-0760	00	0	00003	SSM	
04237	0402	60	0	03107	SUB*	CRCTS-16 L ALL ONES
04240	-0625	60	0	02617	STL*	WHOOOP+3 ERROR-MPR FAILED TO HAVE
04241	-0100	60	0	02620	TNZ*	WHOOOP+4 CORRECT CONTENTS IN MQ
04242	2	00001	1	04174	TIX	FIORD,1,1 REPEAT 200 TIMES
04243	0074	00	4	06275	TSX	OK,4
04244	0020	00	0	03702	TRA	OOK-2
04245	0761	00	0	00000	NOP	

\* READ CARDS AND WRITE TAPE

04246	0074	00	4	05544	TSX	CTX,4
04247	0043	03	0	04247	HTR	*,0,DBLR
04250	-0520	00	0	72374	NZT	COUNT SKIP CARD
04251	0020	00	0	04253	TRA	*+2 READER AFTER
04252	0020	00	0	04267	TRA	*+13 FIRST PASS
04253	-0520	00	0	73006	RCWTP	NZT CRCHA TEST FOR CR-CHAN A
04254	0020	00	0	04257	TRA	*+3 NO
04255	0762	00	0	01321	RCDA	
04256	0540	00	0	72360	RCHA	RCWT READ ONE CARD WITH SEVERAL TRG SETTINGS
04257	-0520	00	0	73012	NZT	CRCHC TEST FOR CR-CHAN C
04260	0020	00	0	04263	TRA	*+3 NO
04261	0762	00	0	03321	RCDC	
04262	0541	00	0	73104	RCHC	RCWT1 READ ONE CARD-SEVERAL INDICATOR SETTINGS
04263	-0520	00	0	73016	NZT	CRCHE TEST FOR CR-CHAN E
04264	0020	00	0	04267	TRA	*+3 NO
04265	0762	00	0	05321	RCDE	
04266	0542	00	0	73111	RCHE	RCWT2 READ ONE CARD-SEVERAL INDICATOR SETTINGS
04267	-0520	00	0	73022	NZT	TPCHB TAPE-CHAN B
04270	0020	00	0	04273	TRA	*+3 NO
04271	0766	00	0	02220	WTBB	
04272	-0540	00	0	71457	RCHB	WTB1 WRITE 6 RECS
04273	-0520	00	0	73023	NZT	TPCHD TAPE-CHAN D
04274	0020	00	0	04277	TRA	*+3 NO
04275	0766	00	0	04220	WTBD	
04276	-0541	00	0	71457	RCHD	WTB1 WRITE 6 RECS
04277	-0520	00	0	73024	NZT	TPCHF TAPE-CHAN F

04300 0020 00 0 04303 TRA \*+3 NO  
 04301 0766 00 0 06220 WTBF  
 04302 -0542 00 0 71457 RCHF WTBI WRITE 6 RECS

\*COMPARISON-READ TAPE ALL CHANNELS

04303 0774 00 1 00300 DBLR AXT 192,1 L +300  
 04304 0754 00 1 00000 PXA 0,1  
 04305 0400 00 0 72017 ADD ONE  
 04306 0601 00 0 06342 STO WDNO SET WDNO CONSTANT  
 04307 0774 00 2 00000 AXT 0,2  
 04310 0500 00 0 72017 CLA ONE  
 04311 0601 00 0 06343 STO RECNO SET RECNO CONSTANT  
  
 04312 -0520 00 0 73022 NZT TPCHB TAPE-CHAN B  
 04313 0020 00 0 04324 TRA \*+9 NO  
  
 04314 0500 00 1 74253 CLA RDFLD+192,1 WORD READ  
 04315 0560 00 1 73653 LDQ WRFLD+192,1 CORRECT WORD  
 04316 0340 00 1 73653 CAS WRFLD+192,1  
 04317 0020 00 0 04321 TRA \*+2 ERROR  
 04320 0020 00 0 04323 TRA \*+3 OK  
 04321 0074 00 4 06266 TSX ERROR-2,4 ERROR OCCURRED WHILE  
 04322 0761 00 0 10577 NOP BCDTB+1 READING ALL CHANNELS  
 04323 2 00001 1 04312 TIX DBLR+7,1,1 RETURN TO CHECK ALL WORDS  
  
 04324 -0520 00 0 73023 NZT TPCHD TAPE-CHAN D  
 04325 0020 00 0 04337 TRA \*+10 NO  
  
 04326 0774 00 1 00300 AXT 192,1  
 04327 0500 00 1 74653 CLA RFCD+192,1 WORD READ  
 04330 0560 00 1 73653 LDQ WRFLD+192,1 CORRECT WORD  
 04331 0340 00 1 73653 CAS WRFLD+192,1  
 04332 0020 00 0 04334 TRA \*+2 ERROR  
 04333 0020 00 0 04336 TRA \*+3 OK  
 04334 0074 00 4 06266 TSX ERROR-2,4  
 04335 0761 00 0 10603 NOP BCDTD+1  
 04336 2 00001 1 04327 TIX \*-7,1,1  
  
 04337 -0520 00 0 73024 NZT TPCHF TAPE-CHAN F  
 04340 0020 00 0 04352 TRA \*+10 NO  
  
 04341 0774 00 1 00300 AXT 192,1  
 04342 0500 00 1 75253 CLA RFEF+192,1 WORD READ  
 04343 0560 00 1 73653 LDQ WRFLD+192,1 CORRECT WORD  
 04344 0340 00 1 73653 CAS WRFLD+192,1  
 04345 0020 00 0 04347 TRA \*+2 ERROR  
 04346 0020 00 0 04351 TRA \*+3 OK  
 04347 0074 00 4 06266 TSX ERROR-2,4  
 04350 0761 00 0 10607 NOP BCDTF+1  
 04351 2 00001 1 04342 TIX \*-7,1,1  
  
 04352 0774 00 2 00002 DBLR1 AXT 2,2

04353	0774	00	1	00040	AXT	32,1	
04354	0754	00	2	00000	PXA	0,2	
04355	0400	00	0	72017	ADD	ONE	
04356	0601	00	0	06343	STO	RECNO	SET RECORD NO. CONSTANT
04357	0754	00	1	00000	PXA	0,1	
04360	0400	00	0	72017	ADD	ONE	
04361	0601	00	0	06342	STO	WDNO	SET WORD NO. CONSTANT
04362	-0520	00	0	73011	NZT	TPCHA	TAPE-CHAN A
04363	0020	00	0	04374	TRA	*+9	NO
04364	0500	00	1	74313	CLA	RDFLD+224,1	WORD READ
04365	0560	00	1	73713	LDQ	WRFLD+224,1	CORRECT WORD
04366	0340	00	1	73713	CAS	WRFLD+224,1	
04367	0020	00	0	04371	TRA	*+2	ERROR
04370	0020	00	0	04373	TRA	*+3	OK
04371	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WHILE
04372	0761	00	0	10575	NOP	BCDTA+1	READING ALL CHANNELS
04373	2	00001	1	04364	TIX	*-7,1,1	RETURN TO CHECK ALL
04374	-0520	00	0	73015	NZT	TPCHC	TAPE CHAN C
04375	0020	00	0	04407	TRA	*+10	NO
04376	0774	00	1	00040	AXT	32,1	
04377	0500	00	1	74713	CLA	RFCD+224,1	WORD READ
04400	0560	00	1	73713	LDQ	WRFLD+224,1	CORRECT WORD
04401	0340	00	1	73713	CAS	WRFLD+224,1	
04402	0020	00	0	04404	TRA	*+2	ERROR
04403	0020	00	0	04406	TRA	*+3	OK
04404	0074	00	4	06266	TSX	ERROR-2,4	
04405	0761	00	0	10601	NOP	BCDTC+1	
04406	2	00001	1	04377	TIX	*-7,1,1	
04407	-0520	00	0	73021	NZT	TPCHE	TAPE-CHAN E
04410	0020	00	0	04422	TRA	*+10	NO
04411	0774	00	1	00040	AXT	32,1	
04412	0500	00	1	75313	CLA	RFEF+224,1	WORD READ
04413	0560	00	1	73713	LDQ	WRFLD+224,1	CORRECT WORD
04414	0340	00	1	73713	CAS	WRFLD+224,1	
04415	0020	00	0	04417	TRA	*+2	ERROR
04416	0020	00	0	04421	TRA	*+3	OK
04417	0074	00	4	06266	TSX	ERROR-2,4	
04420	0761	00	0	10605	NOP	BCDTE+1	
04421	2	00001	1	04412	TIX	*-7,1,1	
04422	2	00001	2	04423	TIX	*+1,2,1	DECREMENT RECORD NO.
04423	-0520	00	0	73011	NZT	TPCHA	TAPE-CHAN A
04424	0020	00	0	04436	TRA	*+10	NO
04425	0774	00	1	00040	AXT	32,1	
04426	0500	00	1	74353	CLA	RDFLD+256,1	WORD READ
04427	0560	00	1	73753	LDQ	WRFLD+256,1	CORRECT WORD
04430	0340	00	1	73753	CAS	WRFLD+256,1	
04431	0020	00	0	04433	TRA	*+2	ERROR
04432	0020	00	0	04435	TRA	*+3	OK



04433	0074	00	4	06266	TSX ERROR-2,4	ERROR OCCURRED WHILE
04434	0761	00	0	10575	NOP BCDTA+1	READING ALL CHANNELS
						SIMILTANEOUSLY
04435	2	00001	1	04426	TIX *-7,1,1	
04436	-0520	00	0	73015	NZT TPCHC	TAPE-CHAN C
04437	0020	00	0	04451	TRA *+10	NO
04440	0774	00	1	00040	AXT 32,1	
04441	0500	00	1	74753	CLA RFCD+256,1	WORD READ
04442	0560	00	1	73753	LDQ WRFLD+256,1	CORRECT WORD
04443	0340	00	1	73753	CAS WRFLD+256,1	
04444	0020	00	0	04446	TRA *+2	ERROR
04445	0020	00	0	04450	TRA *+3	OK
04446	0074	00	4	06266	TSX ERROR-2,4	
04447	0761	00	0	10601	NOP BCDTC+1	
04450	2	00001	1	04441	TIX *+-7,1,1	
04451	-0520	00	0	73021	NZT TPCHE	TAPE-CHAN E
04452	0020	00	0	04464	TRA *+10	NO
04453	0774	00	1	00040	AXT 32,1	
04454	0500	00	1	75353	CLA RFEF+256,1	WORD READ
04455	0560	00	1	73753	LDQ WRFLD+256,1	CORRECT WORD
04456	0340	00	1	73753	CAS WRFLD+256,1	
04457	0020	00	0	04461	TRA *+2	ERROR
04460	0020	00	0	04463	TRA *+3	OK
04461	0074	00	4	06266	TSX ERROR-2,4	
04462	0761	00	0	10605	NOP BCDTE+1	
04463	2	00001	1	04454	TIX *-7,1,1	
04464	0074	00	4	06344	TSX RDNCK,4	
04465	0761	00	0	00740	NOP RDCKT	
04466	0760	00	0	00163	SWT 3	
04467	0020	00	0	04471	TRA *+2	
04470	0020	00	0	04474	TRA *+4	
* PRINT --						
** 00000 READ TAPE CONCURRENTLY-SECTION 16 COMPLETE						
04471	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE
04472	0760	00	0	01363	SPRA 3	
04473	0540	00	0	77773	RCHA SECTN+15	

\*COMPARISON FOR READ CARDS AND WRITE TAPE SECTION

04474	-0520	00	0	72374		NZT COUNT	SKIP CARD
04475	0020	00	0	04477		TRA *+2	READER AFTER
04476	0020	00	0	04553		TRA YUP-8	FIRST PASS
04477	0774	00	1	00030	TOO	AXT 24,1	
04500	0774	00	2	00003		AXT 3,2	
04501	0754	00	1	00000		PXA 0,1	
04502	0400	00	0	72017		ADD ONE	
04503	0601	00	0	06342		STO WDNO	SET WDNO CONSTANT
04504	0754	00	2	00000		PXA 0,2	
04505	0400	00	0	72017		ADD ONE	
04506	0601	00	0	06343		STO RECNO	SET RECNO CONSTANT
04507	-0520	00	0	73006		NZT CRCHA	CR-CHAN A
04510	0020	00	0	04521		TRA *+9	NO
04511	0500	00	1	72430		CLA RDINA+24,1	WORD READ
04512	0560	00	1	72510		LDQ IRAN+24,1	CORRECT WORD
04513	0340	00	1	72510		CAS IRAN+24,1	
04514	0020	00	0	04516		TRA *+2	ERROR
04515	0020	00	0	04520		TRA *+3	OK
04516	0074	00	4	06266		TSX ERROR-2,4	
04517	0761	00	0	71643		NOP CRCA+1	READING CARDS
04520	2 00001	1	1	04511		TIX *-7,1,1	RETURN TO CHECK ALL WORDS
04521	-0520	00	0	73012		NZT CRCHC	CR-CHAN C
04522	0020	00	0	04534		TRA *+10	NO
04523	0774	00	1	00030		AXT 24,1	
04524	0500	00	1	71703		CLA RDNA+24,1	WORD READ
04525	0560	00	1	72510		LDQ IRAN+24,1	CORRECT WORD
04526	0340	00	1	72510		CAS IRAN+24,1	
04527	0020	00	0	04531		TRA *+2	ERROR
04530	0020	00	0	04533		TRA *+3	OK
04531	0074	00	4	06266		TSX ERROR-2,4	
04532	0761	00	0	71644		NOP CRCC+1	READING CARDS
04533	2 00001	1	1	04524		TIX *-7,1,1	
04534	-0520	00	0	73016		NZT CRCHE	CR-CHAN E
04535	0020	00	0	04547		TRA *+10	NO
04536	0774	00	1	00030		AXT 24,1	
04537	0500	00	1	71733		CLA RDNA1+24,1	WORD READ
04540	0560	00	1	72510		LDQ IRAN+24,1	CORRECT WORD
04541	0340	00	1	72510		CAS IRAN+24,1	
04542	0020	00	0	04544		TRA *+2	ERROR
04543	0020	00	0	04546		TRA *+3	OK
04544	0074	00	4	06266		TSX ERROR-2,4	
04545	0761	00	0	71645		NOP CRCE+1	READING CARDS
04546	2 00001	1	1	04537		TIX *-7,1,1	
04547	2 00001	2	1	04550		TIX *+1,2,1	DECREMENT RECORD NO.

04550 0074 00 4 06275 TSX OK,4  
04551 0020 00 0 04250 TRA RCWTP-3  
04552 0761 00 0 00000 NOP

04553 0760 00 0 00163 SWT 3  
04554 0020 00 0 04556 TRA \*+2  
04555 0020 00 0 04561 TRA \*+4

\* PRINT --

\*\* 00000 READ CARDS AND WRITE TAPE-SECTION 17 COMPLETE

04556 0766 00 0 01361 WPRA PRINT SECTION COMPLETE  
04557 0760 00 0 01363 SPRA 3  
04560 0540 00 0 77774 RCHA SECTN+16

\* READ TAPE AND READ CARDS

04561	0074	00	4	05544		TSX	CTX, 4	
04562	0046	14	0	04562		HTR	*, 0, YUP+25	
04563	-0520	00	0	73022	YUP	NZT	TPCHB	TAPE-CHAN B
04564	0020	00	0	04566		TRA	*+2	NO
04565	0764	00	0	02200		BSRB		BACKSPACE OVER ONE
04566	-0520	00	0	73023		NZT	TPCHD	TAPE-CHAN D
04567	0020	00	0	04571		TRA	*+2	NO
04570	0764	00	0	04200		BSRD		
04571	-0520	00	0	73024		NZT	TPCHF	TAPE-CHAN F
04572	0020	00	0	04574		TRA	*+2	NO
04573	0764	00	0	06200		BSRF		
04574	-0520	00	0	73022		NZT	TPCHB	TAPE-CHAN B
04575	0020	00	0	04600		TRA	*+3	NO
04576	0762	00	0	02220		RTBB		40 WORD RECORD
04577	-0540	00	0	72365		RCHB	RCRT	
04600	-0520	00	0	73023		NZT	TPCHD	TAPE-CHAN D
04601	0020	00	0	04604		TRA	*+3	NO
04602	0762	00	0	04220		RTBD		
04603	-0541	00	0	73116		RCHD	RCRT1	READ ONE-40 WORD REC
04604	-0520	00	0	73024		NZT	TPCHF	TAPE-CHAN F
04605	0020	00	0	04610		TRA	*+3	NO
04606	0762	00	0	06220		RTBF		
04607	-0542	00	0	73117		RCHF	RCRT2	READ ONE 40 WORD REC
04610	-0520	00	0	72374		NZT	COUNT	SKIP CARD
04611	0020	00	0	04613		TRA	*+2	READER AFTER
04612	0020	00	0	04627		TRA	*+13	FIRST PASS
04613	-0520	00	0	73006		NZT	CRCHA	CR-CHAN A
04614	0020	00	0	04617		TRA	*+3	NO
04615	0762	00	0	01321		RCDA		
04616	0540	00	0	72360		RCHA	RCWT	READ ONE CARD
04617	-0520	00	0	73012		NZT	CRCHC	CR-CHAR C
04620	0020	00	0	04623		TRA	*+3	
04621	0762	00	0	03321		RCDC		
04622	0541	00	0	73104		RCHC	RCWT1	READ ONE CARD

04623	-0520	00	0	73016		NZT	CRCHE	CR-CHAN	E
04624	0020	00	0	04627		TRA	*+3	NO	
04625	0762	00	0	05321		RCDE			
04626	0542	00	0	73111		RCHE	RCWT2	READ ONE	CARD
04627	0020	00	0	04631		TRA	*+2		
04630	442631213171					BCD	1MFIAIZ		
04631	-0634	00	2	71320		SXD	SAVE,2		
04632	0774	00	4	00200		AXT	128,4		
04633	0774	00	1	00005	H1	AXT	5,1	5 INTO	XRA
04634	0774	00	2	00010		AXT	8,2	10 INTO	XRB
04635	0500	60	1	72356		CLA*	K1+5,1	L -210440000000	-COEF-5
04636	0402	60	2	72361		SUB*	K1+8,2	L -210440000000	-COEF-5
04637	0100	00	0	04642		TZE	*+3	OK	
04640	0074	00	4	06267		TSX	ERROR-1,4	ERROR IN	CLA OR SUB
04641	0761	00	0	04631		NOP	H1-2	IND. ADDR.	AND INDEXED
04642	0774	00	2	00004		AXT	4,2		
04643	0020	60	2	04653		TRA*	*+8,2		
04644	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	TRANSFER
04645	000	00	0	04631		NOP	H1-2		
04646	0020	00	0	04655		TRA	H3		
04647	0761	00	0	04655		NOP	H3		
04650	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	IND. ADDR
04651	000	00	0	04631		NOP	H1-2		
04652	0020	00	0	04655		TRA	H3		
04653	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	INDEX OR IND ADDR
04654	000	00	0	04631		NOP	H1-2		
04655	0774	00	2	00004	H3	AXT	4,2	4 INTO	XRA
04656	0502	60	2	72356		CLS*	K1+5,2	L +2014000000000	-FPCON+4
04657	0400	60	2	72356		ADD*	K1+5,2	L +2014000000000	-FPCON+4
04660	0100	60	2	04670		TZE*	*+8,2		
04661	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	TRANSFER
04662	000	00	0	04631		NOP	H1-2		
04663	0020	00	0	04672		TRA	H4		
04664	0761	00	0	04672		NOP	H4	TO HERE-CORRECT	
04665	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	IND. ADDR
04666	000	00	0	04631		NOP	H1-2		
04667	0020	00	0	04672		TRA	H4		
04670	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	INDEX
04671	000	00	0	04631		NOP	H1-2		
04672	0774	00	2	00004	H4	AXT	4,2		
04673	0500	60	2	72356		CLA*	K1+5,2	L +2014000000000	-FPCON+4
04674	0120	60	2	04704		TPL*	*+8,2		
04675	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	TRANSFER
04676	000	00	0	04631		NOP	H1-2		
04677	0020	00	0	04706		TRA	H5		
04700	0761	00	0	04706		NOP	H5	SHOULD TRA	TO HERE
04701	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO	IND. ADDR.
04702	000	00	0	04631		NOP	H1-2		
04703	0020	00	0	04706		TRA	H5		

04704	0074	00	4	06267	TSX ERROR-1,4	FAILED TO INDEX OR IND ADDR
04705	000	00	0	04631	NOP H1-2	
04706	2 00001	4	4	04633	H5 TIX H1,4,1	REPEAT 100 TIMES FOR RELIABILITY
04707	0074	00	4	06344	TSX RDNCK,4	
04710	0761	00	0	00407	NOP UGO-2	

\*COMPARISON FOR READ TAPE AND READ CARDS SECTION

04711	-0520	00	0	72374	NZT COUNT	SKIP CARD
04712	0020	00	0	04714	TRA *+2	READER AFTER
04713	0020	00	0	04757	TRA RCDTP-17	FIRST PASS
04714	-0534	00	2	71320	LXD SAVE,2	RESTORE XRB
04715	-0520	00	0	73006	NZT CRCHA	CR-CHAN A
04716	0020	00	0	04730	TRA *+10	NO
04717	0774	00	1	00030	AXT 24,1	
04720	0500	00	1	72430	CLA RDINA+24,1	WORD READ --- COMPARE
04721	0560	00	1	72460	LDQ RDINC+24,1	CORRECT WORD -- 2ND CARD
04722	0340	00	1	72460	CAS RDINC+24,1	
04723	0020	00	0	04725	TRA *+2	ERROR
04724	0020	00	0	04727	TRA *+3	OK
04725	0074	00	4	06266	TSX ERROR-2,4	ERROR OCCURRED WHILE
04726	0761	00	0	71643	NOP CRCA+1	READING CARDS
04727	2 00001	1	1	04720	TIX *-7,1,1	CHECK ALL WORDS
04730	-0520	00	0	73012	NZT CRCHC	CR-CHAN C
04731	0020	00	0	04743	TRA *+10	NO
04732	0774	00	1	00030	AXT 24,1	
04733	0500	00	1	71703	CLA RDNA+24,1	WORD READ
04734	0560	00	1	72460	LDQ RDINC+24,1	CORRECT WORD
04735	0340	00	1	72460	CAS RDINC+24,1	
04736	0020	00	0	04740	TRA *+2	ERROR
04737	0020	00	0	04742	TRA *+3	OK
04740	0074	00	4	06266	TSX ERROR-2,4	
04741	0761	00	0	71644	NOP CRCC+1	READING CARDS
04742	2 00001	1	1	04733	TIX *-7,1,1	
04743	-0520	00	0	73016	NZT CRCHE	CR-CHAN E
04744	0020	00	0	04756	TRA *+10	NO
04745	0774	00	1	00030	AXT 24,1	
04746	0500	00	1	71733	CLA RDNA1+24,1	WORD READ
04747	0560	00	1	72460	LDQ RDINC+24,1	CORRECT WORD
04750	0340	00	1	72460	CAS RDINC+24,1	
04751	0020	00	0	04753	TRA *+2	ERROR
04752	0020	00	0	04755	TRA *+3	OK
04753	0074	00	4	06266	TSX ERROR-2,4	
04754	0761	00	0	71645	NOP CRCE+1	READING CARDS
04755	2 00001	1	1	04746	TIX *-7,1,1	
04756	2 00001	2	1	04757	TIX *+1,2,1	DECREMENT RECORD NO
04757	0074	00	4	06275	TSX OK,4	

04760 0020 00 0 04563 TRA YUP  
 04761 0761 00 0 00000 NOP  
 04762 -0634 00 2 71320 SXD SAVE,2

\*READ CARDS AND WRITE TAPE

04763 0074 00 4 05544 TSX CTX,4  
 04764 0050 24 0 05000 HTR RCDTP,0,RCDTP+20

04765 -0520 00 0 72374 NZT COUNT SKIP CARD  
 04766 0020 00 0 04770 TRA \*+2 READER AFTER  
 04767 0020 00 0 05004 TRA RCDTP+4 FIRST PASS

04770 -0520 00 0 73006 NZT CRCHA CR-CHAN A  
 04771 0020 00 0 04774 TRA \*+3 NO

04772 0762 00 0 01321 RCDA  
 04773 0540 00 0 72360 RCHA RCWT CONTROL TO READ THIRD CARD

04774 -0520 00 0 73012 NZT CRCHC CR-CHAN C  
 04775 0020 00 0 05000 TRA \*+3 NO

04776 0762 00 0 03321 RCDC  
 04777 0541 00 0 73104 RCHC RCWT1

05000 -0520 00 0 73016 RCDTP NZT CRCHE CR-CHAN E  
 05001 0020 00 0 05004 TRA \*+3 NO

05002 0762 00 0 05321 RCDE  
 05003 0542 00 0 73111 RCHE RCWT2

05004 -0520 00 0 73022 NZT TPCHB TAPE-CHAN B  
 05005 0020 00 0 05010 TRA \*+3 NO  
 05006 0766 00 0 02220 WTBB  
 05007 -0540 00 0 71457 RCHB WTB1

05010 -0520 00 0 73023 NZT TPCHD TAPE-CHAN D  
 05011 0020 00 0 05014 TRA \*+3 NO

05012 0766 00 0 04220 WTBD  
 05013 -0541 00 0 71457 RCHD WTB1

05014 -0520 00 0 73024 NZT TPCHF TAPE-CHAN F  
 05015 0020 00 0 05020 TRA \*+3 NO

05016 0766 00 0 06220 WTBF  
 05017 -0542 00 0 71457 RCHF WTB1  
 05020 0020 00 0 05022 TRA \*+2

EXECUTE INSTRUCTION TEST

05021 672523606060 BCD 1XEC TEST EXECUTE CAUSES 709

TO TAKE NEXT INSTR FROM  
 EXECUTE ADR, PERFORM THAT  
 INSTR AND RETURN TO EXE-  
 CUTE INSTRUCTION PLUS 1

05022	0500	00	0	72016	EX	CLA ZERO	CLEAR ACC
05023	0522	00	0	05025		XEC *+2	
05024	0020	00	0	05030		TRA *+4	
05025	0500	00	0	73233		CLA MINUS	L -0
05026	0074	00	4	06267		TSX ERROR-1,4	FAILED TO RETURN TO EXECUTE INSTR PLUS 1
05027	-3	00000	0	05022		TXL EX	
TEST FOR MINUS SIGN IN ACC							
05030	-0120	00	0	05033		TMI *+3	OK-ACC SIGN MINUS
05031	0074	00	4	06267		TSX ERROR-1,4	ERROR-ACC SIGN PLUS
05032	0020	00	0	05022		TRA EX	
05033	0020	00	0	05035		TRA *+2	
05034	672523606060					BCD 1XEC	TEST EXECUTE TO TRANSFER DOES NOT RETURN TO EXECUTE PLUS 1
05035	0522	00	0	05040	EXA	XEC *+3	
05036	0074	00	4	06267		TSX ERROR-1,4	ERROR-SHOULD GO TO TRA INSTR AND PROCEED
05037	-3	00000	0	05035		TXL EXA	
05040	0020	00	0	05042		TRA *+2	
05041	672523606060					BCD 1XEC	TEST EXECUTE WITH TXI
05042	0774	00	1	00006	EXB	AXT 6,1	L 6 IN XRA
05043	0522	00	0	05047		XEC *+4	
05044	0074	00	4	06267		TSX ERROR-1,4	ERROR-SHOULD GO TO TXI
05045	-3	00000	0	05042		TXL EXB	INSTRUCTION AND PROCEED
05046	0020	00	0	05061		TRA EXC	GO TO NEXT TEST IF ERROR
05047	1	00001	1	05050		TXI *+1,1,1	
05050	0754	00	1	00000		PXA 0,1	XRA TO ADR OF ACC
05051	0560	00	0	73236		LDQ SEVEN	L +7 TO MQ
05052	0340	00	0	73236		CAS SEVEN	
05053	0020	00	0	05055		TRA *+2	ERROR
05054	0020	00	0	05057		TRA *+3	OK
05055	0074	00	4	06267		TSX ERROR-1,4	
05056	0020	00	0	05042		TRA EXB	
05057	0020	00	0	05061		TRA *+2	
05060	672523606060					BCD 1XEC	TEST EXECUTE WITH TXL WITH XR LOW
05061	0774	00	1	00000	EXC	AXT 0,1	CLEAR XRA
05062	0522	00	0	05066		XEC *+4	
05063	0074	00	4	06267		TSX ERROR-1,4	ERROR-SHOULD GO TO TXL
05064	-3	00000	0	05061		TXL EXC	INSTRUCTION AND PROCEED
05065	0020	00	0	05071		TRA EXD	



05066	-3	00001	1	05071		TXL	++3,1,1	SHOULD TRANSFER
05067	0074	00	4	06267		TSX	ERROR-1,4	ERROR-DID NOT TRANSFER
05070	0020	00	0	05061		TRA	EXC	
05071	0522	00	0	05075	EXD	XEC	++4	
05072	0074	00	4	06267		TSX	ERROR-1,4	ERROR-SHOULD GO TO TXL
05073	-3	00000	0	05061		TXL	EXC	INSTRUCTION AND PROCEED
05074	0020	00	0	05102		TRA	EXF	GO TO NEXT TEST IF ERROR
05075	-3	00000	1	05100		TXL	++3,1,0	SHOULD TRANSFER
05076	0074	00	4	06267		TSX	ERROR-1,4	ERROR-DID NOT TRANSFER
05077	0020	00	0	05061		TRA	EXC	
05100	0020	00	0	05102		TRA	++2	
05101	672523606060					BCD	1XEC	TEST EXECUTE WITH TXL WITH XR HIGH
05102	0500	00	0	72016	EXF	CLA	ZERO	CLEAR ACC
05103	0774	00	1	00001		AXT	1,1	L 1 IN XRA
05104	0522	00	0	05107		XEC	++3	
05105	0500	00	0	73233		CLA	MINUS	L-0
05106	0020	00	0	05112		TRA	++4	
05107	-3	00000	1	05110		TXL	++1,1,0	SHOULD NOT TRANSFER,GO BACK TO EXECUTE PLUS 1
05110	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO RETURN TO
05111	-3	00000	0	05102		TXL	EXF	EXECUTE INSTR PLUS 1
05112	-0120	00	0	05115		TMI	++3	SHOULD TRANSFER
05113	0074	00	4	06270		TSX	ERROR,4	ERROR-ACC PLUS
05114	0020	00	0	05102		TRA	EXF	
05115	0020	00	0	05117		TRA	++2	
05116	672523606060					BCD	1XEC	TEST EXECUTE WITH TXH WITH XR HIGH
05117	0774	00	1	00001	EXG	AXT	1,1	L 1 IN XRA
05120	0522	00	0	05124		XEC	++4	
05121	0074	00	4	06267		TSX	ERROR-1,4	ERROR-SHOULD GO TO TXH
05122	-3	00000	0	05117		TXL	EXG	INSTRUCTION AND PROCEED
05123	0020	00	0	05131		TRA	EXH	GO TO NEXT TEST IF ERROR
05124	3	00000	1	05127		TXH	++3,1,0	SHOULD TRANSFER
05125	0074	00	4	06267		TSX	ERROR-1,4	
05126	0020	00	0	05117		TRA	EXG	
05127	0020	00	0	05131		TRA	++2	
05130	672523606060					BCD	1XEC	TEST EXECUTE WITH TXH WITH XR LOW
05131	0774	00	1	00000	EXH	AXT	0,1	CLEAR XRA
05132	0500	00	0	72016		CLA	ZERO	CLEAR ACC
05133	0522	00	0	05136		XEC	++3	
05134	0500	00	0	73233		CLA	MINUS	L -0
05135	0020	00	0	05141		TRA	++4	

05136	3	00000	1	05137		TXH	*+1,1,0	SHOULD NOT TRANSFER, GO BACK TO EXECUTE PLUS 1
05137	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO RETURN TO
05140	-3	00000	0	05131		TXL	EXH	EXECUTE INSTR PLUS 1
05141	-0120	00	0	05144		TMI	*+3	SHOULD TRANSFER
05142	0074	00	4	06267		TSX	ERROR-1,4	ERROR-ACC PLUS
05143	0020	00	0	05131		TRA	EXH	
05144	0020	00	0	05146		TRA	*+2	
05145	672523606060					BCD	1XEC	TEST EXECUTE WITH TIX
05146	0774	00	1	00001	EXI	AXT	1,1	L 1 IN XRA
05147	0522	00	0	05152		XEC	*+3	
05150	0074	00	4	06267		TSX	ERROR-1,4	ERROR-SHOULD GO TO TIX
05151	-3	00000	0	05146		TXL	EXI	INSTRUCTION AND PROCEED
05152	0020	00	0	05156		TRA	EXJ	GO TO NEXT TEST IF ERROR
05153	2	00000	1	05156		TIX	*+3,1,0	SHOULD TRANSFER
05154	0074	00	4	06267		TSX	ERROR-1,4	ERROR-DID NOT TRANSFER
05155	0020	00	0	05146		TRA	EXI	
05156	0500	00	0	72016	EXJ	CLA	ZERO	CLEAR ACC
05157	0522	00	0	05162		XEC	*+3	
05160	0500	00	0	73233		CLA	MINUS	L -0
05161	0020	00	0	05165		TRA	*+4	
05162	2	00001	1	05163		TIX	*+1,1,1	SHOULD NOT TRANSFER
05163	0074	00	4	06267		TSX	ERROR-1,4	FAILED TO RETURN TO
05164	-3	00000	0	05146		TXL	EXI	EXECUTE INSTR PLUS 1
05165	-0120	00	0	05170		TMI	*+3	SHOULD TRANSFER
05166	0074	00	4	06267		TSX	ERROR-1,4	ERROR-ACC PLUS
05167	0020	00	0	05146		TRA	EXI	
05170	0020	00	0	05172		TRA	*+2	
05171	672523606060					BCD	1XEC	TEST EXECUTE WITH TSX
05172	0522	00	0	05177	EXK	XEC	*+5	
05173	0074	00	4	06267		TSX	ERROR-1,4	ERROR-RETURNED TO
05174	-3	00000	0	05172		TXL	EXK	EXECUTE INSTR PLUS 1
05175	0020	00	0	05207		TRA	EXL	GO TO NEXT TEST IF ERROR
05176	0020	00	0	05205		TRA	*+7	RETURN FROM SUBROUTINE
05177	0074	00	1	73237		TSX	HUH,1	OUT TO SUBROUTINE
05200	0761	00	0	00000		NOP		
05201	0761	00	0	00000		NOP		
05202	0761	00	0	00000		NOP		
05203	0074	00	4	06267		TSX	ERROR-1,4	ERROR-FAILED TO RETURN TO EXK PLUS 4
05204	0020	00	0	05172		TRA	EXK	
05205	0020	00	0	05207		TRA	*+2	
05206	672523606060					BCD	1XEC	TEST EXECUTE WITH CAS

05207	0500	00	0	73234	EXL	CLA K2A	L 200777760000	IN AC
05210	0560	00	0	73234		LDQ K2A	L 200777760000	IN MQ
05211	0522	00	0	05215		XEC *+4		
05212	0020	00	0	05223		TRA *+9	ERROR IN COMPARISON	
05213	0020	00	0	05225		TRA *+10	OK	
05214	0020	00	0	05223		TRA *+7	ERROR IN COMPARISON	
05215	0340	00	0	73234		CAS K2A		
05216	0020	00	0	05220		TRA *+2	ERROR-DID NOT RETURN	
05217	0020	00	0	05220		TRA *+1	TO EXECUTE INSTR PLUS 1,	
05220	0074	00	4	06267		TSX ERROR-1,4	2,S AFTER CAS INSTR	
05221	-3	00000	0	05207		TXL EXL		
05222	0020	00	0	05227		TRA *+5	GO TO NEXT TEST IF ERROR	
05223	000	00	4	06267		TXS ERROR-1,4		
05224	0020	00	0	05207		TRA EXL		
05225	0020	00	0	05227		TRA *+2		
05226	672523606060					BCD 1XEC	TEST EXECUTE INDEXABLE	
05227	0774	00	1	00004	EX1	AXT 4,1	L 4 IN XRA	
05230	0500	00	0	73233		CLA MINUS	L -0	
05231	0522	00	1	05237		XEC *+6,1	SHOULD GO TO EX1 PLUS 4	
05232	0020	00	0	05242		TRA *+8		
05233	0500	00	0	72016		CLA ZERO	L +0	
05234	0074	00	4	06267		TSX ERROR-1,4	FAILED TO RETURN	
							TO EXECUTE PLUS 1	
05235	-3	00000	0	05227		TXL EX1		
05236	0020	00	0	05247		TRA EX2	GO TO NEXT TEST IF ERROR	
05237	0074	00	4	06267		TSX ERROR-1,4	FAILED TO MODIFY ADR	
05240	0020	00	0	05227		TRA EX1		
05241	0020	00	0	05247		TRA EX2	GO TO NEXT TEST IF ERROR	
TEST ACCUMULATOR SIGN								
05242	0120	00	0	05245		TPL *+3	OK ACC SIGN PLUS	
05243	0074	00	4	06267		TSX ERROR-1,4		
05244	0020	00	0	05227		TRA EX1		
05245	0020	00	0	05247		TRA *+2		
05246	672523606060					BCD 1XEC	TEST EXECUTE INDIRECT	
							ADDRESSABLE	
05247	0522	60	0	00122	EX2	XEC* TCW3+1	ACC 777777777770	
05250	0560	00	0	72376		LDQ CMOUT	L 777777777770	
05251	-0340	00	0	72376		LAS CMOUT		
05252	0020	00	0	05254		TRA *+2		
05253	0020	00	0	05264		TRA *+9	OK	
05254	-0340	00	0	00122		LAS TCW3+1		
05255	0020	00	0	05257		TRA *+2		
05256	0020	00	0	05262		TRA *+4		
05257	0074	00	4	06267		TSX ERROR-1,4	FAILED TO IA CORRECTLU	
05260	0020	00	0	05247		TRA EX2		
05261	0020	00	0	05266		TRA EX3		

05262	0074	00	4	06267		TSX ERROR-1,4	FALSE INDIRECT ADDRESS
05263	0020	00	0	05247		TRA EX2	
05264	0020	00	0	05266		TRA *+2	
05265	672523606060					BCD 1XEC	TEST SUCCESSIVE EXECUTES
05266	0500	00	0	72017	EX3	CLA ONE	L +1
05267	0522	00	0	05270		XEC *+1	
05270	0522	00	0	05271		XEC *+1	
05271	0522	00	0	05272		XEC *+1	
05272	0522	00	0	05273		XEC *+1	
05273	0522	00	0	05274		XEC *+1	
05274	0400	00	0	72017		ADD ONE	L +1
05275	0402	00	0	73236		SUB SEVEN	L +7
05276	0100	00	0	05301		TZE *+3	OK
05277	0074	00	4	06267		TSX ERROR-1,4	
05300	0020	00	0	05266		TRA EX3	

\*COMPARISON FOR THIRD CARD AND READ TAPE-PREVIOUS SECTION

05301	-0520	00	0	72374		NZT COUNT	SKIP CARD
05302	0020	00	0	05304		TRA *+2	READER AFTER
05303	0020	00	0	05363		TRA TOGO	FIRST PASS
05304	0774	00	1	00040		AXT 32,1	
05305	0754	00	1	00000		PXA 0,1	
05306	0400	00	0	72017		ADD ONE	
05307	0601	00	0	06342		STO WDNO	SET WORD NO CONSTANT
05310	0774	00	2	00000		AXT 0,2	
05311	0500	00	0	72017		CLA ONE	L +1
05312	0601	00	0	06343		STO RECNO	SET RECNO CONSTANT
05313	-0520	00	0	73022		NZT TPCHB	TAPE-CHAN B
05314	0020	00	0	05325		TRA *+9	NO
05315	0500	00	1	74013		CLA RDFLD+32,1	WORD READ
05316	0560	00	1	73453		LDQ WRFLD+64,1	WORD READ
05317	0340	00	1	73453		CAS WRFLD+64,1	
05320	0020	00	0	05322		TRA *+2	ERROR
05321	0020	00	0	05324		TRA *+3	OK
05322	0074	00	4	06266		TSX ERROR-2,4	ERROR OCCURRED WHILE
05323	0761	00	0	10577		NOP BCDTB+1	READING CARDS AND
							READING TAPE
05324	2	00001	1	05315		TIX *-7,1,1	RETURN TO CHECK ALL WORDS
05325	-0520	00	0	73023		NZT TPCHD	TAPE-CHAN D
05326	0020	00	0	05340		TRA *+10	NO
05327	0774	00	1	00040		AXT 32,1	
05330	0500	00	1	74413		CLA RFCD+32,1	WORD READ
05331	0560	00	1	73453		LDQ WRFLD+64,1	CORRECT WORD
05332	0340	00	1	73453		CAS WRFLD+64,1	
05333	0020	00	0	05335		TRA *+2	ERROR
05334	0020	00	0	05337		TRA *+3	OK
05335	0074	00	4	06266		TSX ERROR-2,4	

05336	0761	00	0	10603	NOP	BCDTD+1	
05337	2	00001	1	05330	TIX	*-7,1,1	
05340	-0520	00	0	73024	NZT	TPCHF	TAPE-CHAN F
05341	0020	00	0	05353	TRA	*+10	NO
05342	0774	00	1	00040	AXT	32,1	
05343	0500	00	1	75013	CLA	RFEF+32,1	WORD READ
05344	0560	00	1	73453	LDQ	WRFLD+64,1	CORRECT WORD
05345	0340	00	1	73453	CAS	WRFLD+64,1	
05346	0020	00	0	05350	TRA	*+2	ERROR
05347	0020	00	0	05352	TRA	*+3	OK
05350	0074	00	4	06266	TSX	ERROR-2,4	
05351	0761	00	0	10607	NOP	BCDTF+1	
05352	2	00001	1	05343	TIX	*-7,1,1	
05353	0774	00	1	00030	AXT	24,1	
05354	0754	00	1	00000	PXA	0,1	
05355	0400	00	0	72017	ADD	ONE	
05356	0601	00	0	06342	STO	WDNO	SET WORD NO. CONSTANT
05357	-0534	00	2	71320	LXD	SAVE,2	RESTORE XRB
05360	0754	00	2	00000	PXA	0,2	
05361	0400	00	0	72017	ADD	ONE	
05362	0601	00	0	06343	STO	RECNO	SET REC. NO. CONSTANT
05363	0774	00	4	00100	AXT	64,4	
05364	2	00001	4	05364	TIX	*,4,1	DELAY
05365	0074	00	4	06344	TSX	RDNCK,4	
05366	0761	00	0	00407	NOP	UGO-2	
05367	0760	00	0	00163	SWT	3	
05370	0020	00	0	05372	TRA	*+2	
05371	0020	00	0	05375	TRA	*+4	
* PRINT --							
**	00000	READ TAPE AND READ CARDS-SECTION 18 COMPLETE					
05372	0766	00	0	01361	WPRA	PRINT SECTION COMPLETE	
05373	0760	00	0	01363	SPRA	3	
05374	0540	00	0	77775	RCHA	SECTN+17	

05375	-0520	00	0	72374	NZT	COUNT	SKIP CARD
05376	0020	00	0	05400	TRA	*+2	READER AFTER
05377	0020	00	0	05440	TRA	GOOF-15	FIRST PASS
05400	-0520	00	0	73006	NZT	CRCHA	CR-CHAN A
05401	0020	00	0	05412	TRA	*+9	NO
05402	0500	00	1	72430	CLA	RDINA+24,1	WORD READ
05403	0560	00	1	71361	LDQ	FIX+24,1	CORRECT WORD
05404	0340	00	1	71361	CAS	FIX+24,1	
05405	0020	00	0	05407	TRA	*+2	ERROR
05406	0020	00	0	05411	TRA	*+3	OK
05407	0074	00	4	06266	TSX	ERROR-2,4	ERROR OCCURRED WHILE
05410	0761	00	0	71643	NOP	CRCA+1	READING CARDS-WRITING TAPE
05411	2	00001	1	05402	TIX	*-7,1,1	RETURN TO CHECK ALL WORDS
05412	-0520	00	0	73012	NZT	CRCHC	CR-CHAN C
05413	0020	00	0	05425	TRA	*+10	NO
05414	0774	00	1	00030	AXT	24,1	
05415	0500	00	1	71703	CLA	RDNA+24,1	WORD READ
05416	0560	00	1	71361	LDQ	FIX+24,1	CORRECT WORD
05417	0340	00	1	71361	CAS	FIX+24,1	
05420	0020	00	0	05422	TRA	*+2	ERROR
05421	0020	00	0	05424	TRA	*+3	OK
05422	0074	00	4	06266	TSX	ERROR-2,4	
05423	0761	00	0	71644	NOP	CRCC+1	
05424	2	00001	1	05415	TIX	*-7,1,1	
05425	-0520	00	0	73016	NZT	CRCHE	CR-CHAN E
05426	0020	00	0	05440	TRA	*+10	NO
05427	0774	00	1	00030	AXT	24,1	
05430	0500	00	1	71733	CLA	RDNA1+24,1	WORD READ
05431	0560	00	1	71361	LDQ	FIX+24,1	CORRECT WORD
05432	0340	00	1	71361	CAS	FIX+24,1	
05433	0020	00	0	05435	TRA	*+2	ERROR
05434	0020	00	0	05437	TRA	*+3	OK
05435	0074	00	4	06266	TSX	ERROR-2,4	
05436	0761	00	0	71645	NOP	CRCE+1	
05437	2	00001	1	05430	TIX	*-7,1,1	
05440	0074	00	4	06275	TSX	OK,4	
05441	0020	00	0	04765	TRA	RCDTP-11	
05442	0761	00	0	00000	NOP		
05443	0760	00	0	00163	SWT	3	
05444	0020	00	0	05446	TRA	*+2	
05445	0020	00	0	05451	TRA	*+4	

\* PRINT --

\*\* 00000 READ CARDS AND WRITE TAPE-SECTION 19 COMPLETE

05446	0766	00	0	01361		WPRA	PRINT SECTION COMPLETE
05447	0760	00	0	01363		SPRA 3	
05450	0540	00	0	77776		RCHA SECTN+18	
05451	0500	00	0	02047		CLA LACE1	PUNCH FIXED
05452	0621	00	0	01032		STA LACE	PATTERN
05453	0621	00	0	01036		STA LACE+4	AFTER
05454	0621	00	0	01042		STA LACE+8	FIRST PASS
05455	-0625	00	0	72374		STL COUNT	SWITCH TO BYPASS CARD READER
05456	0020	00	0	05470		TRA FINIS	
05457	0441	00	0	05461	GOOF	LDI ADDR1	THE ADDRESS OF ADDR1 WILL
05460	0020	00	0	05462		TRA *+2	CONTAIN THE LOCATION OF THE
05461	+00000000000000				ADDR1	OCT 0	EXIT WHERE ERROR OCCURED. THIS WOULD MEAN THE INSTRS. BETWEEN THIS EXIT AND THE PREVIOUS EXIT TO GOOF ARE THE INSTRUCTIONS THAT FAILED.
05462	0074	00	4	06267		TSX ERROR-1,4	IN AN ERROR PRINT OUT THE ADDR OF THE INDICATORS WILL CONTAIN THE LOCATION OF THE ERROR EXIT.
05463	0761	00	0	02611		NOP WHOOP-3	IF AN ERROR OCCURS THIS SECTION OF THE MAIN FRAME TEST WILL NOT BE COMPLETED. BUT WILL GO OUT TO THE NEXT SECTION.
05464	0500	00	0	05467		CLA ADDR2	L REENTRY
05465	0621	00	0	05466		STA *+1	STA EXIT TO PROGRAM
05466	0020	00	0	00000		TRA	RETURN TO PROGRAM
05467	+00000000000000				ADDR2	OCT 0	

				05470			ORG ADDR2+1		
05470	0500	00	0	71735	FINIS		CLA RST		
05471	0622	00	0	71627			STD MONIT		
05472	0500	00	0	72375			CLA TPCNT	{	OF TAPE UNITS SELECTED
05473	0402	00	0	72017			SUB ONE		
05474	-0100	00	0	05502			TNZ *+6		
05475	0074	00	4	05545			TSX IORST,4	TO RESET I/O INSTRUCTIONS	
05476	0050	22	0	00154			HTR TOV,0,EX		
05477	0074	00	4	05545			TSX IORST,4		
05500	0106	14	0	10574			HTR BCDTA,0,BCDF+2		
05501	0020	00	0	05505			TRA SW5		
05502	0601	00	0	72375			STO TPCNT		
05503	0074	00	4	05543			TSX SBCNT,4	TO REDUCE COUNT	
05504	0020	00	0	00150			TRA TOV-4		
05505	0500	00	0	71652	SW5		CLA STPCT		
05506	0601	00	0	72375			STO TPCNT		
05507	0760	00	0	00163			SWT 3		
05510	0020	00	0	05512			TRA *+2		
05511	0020	00	0	05515			TRA *+4		
05512	0766	00	0	01361			WPRA		
05513	0760	00	0	01363			SPRA 3		
05514	0540	00	0	72065			RCHA ENCTL	CONTROL FOR PRINTING	
								PASS COMPLETE	
05515	0760	00	0	00165			SWT 5	TEST SWITCH {5	
05516	0020	00	0	05521			TRA SW6	UP-TEST SWITCH 6	
05517	0074	00	2	72322			TSX RELO,2		
05520	0020	00	0	00150			TRA TOV-4		
05521	0760	00	0	00166	SW6		SWT 6		
05522	0020	00	0	05525			TRA *+3	UP-NEXT PROGRAM	
05523	0074	00	2	72322			TSX RELO,2	RESET CARD IMAGE	
05524	0020	00	0	00030			TRA BEGIN	DOWN-BACK TO ENTER CONTROL	
05525	0762	00	0	01321			RCDA		
05526	0540	00	0	10614			RCHA OMY		
05527	0544	00	0	00000			LCHA 0		
05530	0020	00	0	00001			TRA 1		



05531            ORG SW6+8  
 05531    B        HED

\*                709 ROUTINE FOR MODIFICATION OF  
 \*                                I-O INSTRUCTIONS

05531	+000000000000	CTRL1	OCT +0	COUNT WORD FOR DS A+B
05532	+000000000000	CTRL2	OCT +0	COUNT WORD FOR DS C+D
05533	+000000000000	CTRL3	OCT +0	COUNT WORD FOR DS E+F
05534	+000000000000	IOCT	OCT +0	I-O COUNT
05535	+000000000000	CTRA	OCT +0	NUMBER OF UNITS - CHN A
05536	+000000000000	CTRB	OCT +0	NUMBER OF UNITS - CHN B
05537	+000000000000	CTRC	OCT +0	NUMBER OF UNITS - CHN C
05540	+000000000000	CTRD	OCT +0	NUMBER OF UNITS - CHN D
05541	+000000000000	CTRE	OCT +0	NUMBER OF UNITS - CHN E
05542	+000000000000	CTRF	OCT +0	NUMBER OF UNITS - CHN F
05543	0020 00 0 06144	SBCNT	TRA RDCNT	
05544	0020 00 0 05651	CTX	TRA CTX1	TO MODIFY PROGRAM
05545	-0625 00 0 06224	IORST	STL REST	SET SWITCH WITH BITS
05546	0020 00 0 05651		TRA CTX1	
05547	0020 00 0 05577	IOCNT	TRA IOC1	TO RELOAD I-O COUNT

\*            ENTER CONTROL WORDS FOTR CHANNELS AND UNITS

05550	0600 00 0 05531	IOC	STZ CTRL1	CLEAR
05551	0600 00 0 05532		STZ CTRL2	CONTROL
05552	0600 00 0 05533		STZ CTRL3	WORDS.

05553	0000 00 0 05554	HTR	*+1	ENTER KEYS WITH CONTROL WORD FOR CHN A AND/OR B
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\*            INCLUDE THE DATA SYSNC TO BE USED IN THE TAG  
 \*            OF THE CONTROL WORD

\*            NOTE - A TAG OF 1 WILL SPECIFY CHAN A AND/OR B  
 \*                    A TAG OF 2 WILL SPECIFY CHAN C AND/OR D  
 \*                    A TAG OF 4 WILL SPECIFY CHAN E AND/OR F

\*            IF 2 OR MORE DS ARE TO BE TESTED THE 1ST CONTROL  
 \*            WORD ENTERED IN THE KEYS SHOULD CONTIAN A MULTIPLE TAG

05554	0760 00 0 00004	ENK		PLACE WORD
05555	-0130 00 0 00000	XCL		ENTERED ON KEYS
05556	0044 00 0 00000	PAI		IN INDICATORS
05557	0054 00 700000	DSC	RFT 0,7	DO WE HAVE A TAG BIT
05560	0020 00 0 05562	TRA	DSC1	YES

05561	0000 00 0 05554	HTR	*-5	NO TAG BIT - RE-ENTER FIRST CONTROL WORD SPECIFYING OS IN TAG OF KEYS
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05562	0056	00	100000	DSC1	RNT 0,1	TEST FOR CHAN A AND/OR B
05563	0020	00	0 05565		TRA DSC2	NO
05564	0604	00	0 05531		STI CTRL1	CNTL WORD FOR A AND/OR B
05565	0056	00	200000	DSC2	RNT 0,2	TEST FOR CHAN C AND/OR D
05566	0020	00	0 05572		TRA DSC3	NO

05567	0000	00	0 05570		HTR *+1	SET CONT WORD IN KEYS FOR CHAN C AND/OR D
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05570	0760	00	0 00004		ENK	
05571	-0600	00	0 05532		STQ CTRL2	
05572	0056	00	400000	DSC3	RNT 0,4	TEST FOR CHAN E AND/OR F
05573	0020	00	0 05577		TRA *+4	NO

05574	0000	00	0 05575		HTR *+1	SET CONT WORD IN KEYS FOR CHAN E AND/OR F
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05575	0760	00	0 00004		ENK	
05576	-0600	00	0 05533		STQ CTRL3	

\* ESTABLISH UNIT COUNT FROM CONTROL WORDS

05577	0600	00	0 05534	IOC1	STZ IOCT	CLEAR UNIT COUNT
05600	0634	00	4 06233		SXA ACCX,4	SAVE XRC
05601	0774	00	2 00003		AXT 3,2	L +3 IN XRB
05602	0774	00	1 00006		AXT 6,1	L +6 IN XRA
05603	0774	00	4 00002		AXT 2,4	L +2 IN XRC
05604	0500	00	4 06167		CLA FOUR+2,4	
05605	0621	00	0 05607		STA AB+1	
05606	-0500	00	2 05534	AB	CAL CTRL1+3,2	L CHANNEL CONTROL WORD
05607	0771	00	0 00004		ARS 4	
05610	0044	00	0 00000		PAI	
05611	-0320	00	0 06171		ANA KON2	L + 17 - CLEAR ACC TO COUNT
05612	0056	00	000020		RNT 20	CHECK FOR EXCLUSIVE BIT
05613	0020	00	0 05615		TRA *+2	NO
05614	0500	00	0 06172		CLA KON+2	YES - L + 1 FOR COUNT
05615	0601	00	1 05543		STO CTRA+6,1	SAVE CHN UNIT CONT
05616	0400	00	0 05534		ADD IOCT	
05617	0601	00	0 05534		STO IOCT	SAVE TOTAL UNIT COUNT
05620	2 00001	1	05621		TIX *+1,1,1,	
05621	2 00001	4	05604		TIX AB-2,4,1	
05622	2 00001	2	05603		TIX AB-3,2,1	
05623	0534	00	4 06233		LXA ACCX,4	RELOAD XRC

05624	0500	00	0 06165	CNT	CLA FOUR	L +4
05625	0734	00	2 00000		PAX 0,2	L ACC IN XRB
05626	0634	00	2 05632		SXA *+4,2	L XRB IN ADDRESS
05627	0774	00	1 00003		AXT 3,1	L +3 IN XRA
05630	0760	00	0 00000		CLM	

05631	0441	00	1	05534	LDI	CTRL3+1,1	
05632	0056	00		000000	RNT		CHECK NUMBER OF CARD MACHINES ON LINE
05633	0020	00	0	05635	TRA	*+2	NO
05634	0400	00	0	06172	ADD	KON+2	YES - L +1
05635	2	00001	1	05631	TIX	*-4,1,1	
05636	0340	00	0	05534	CAS	IOCT	
05637	0621	00	0	05534	STA	IOCT	
05640	0761	00	0	00000	NOP		
05641	0754	00	2	00000	PXA	0,2	L XRB IN ACC
05642	0771	00	0	00001	ARS	1	
05643	2	00001	2	05625	TIX	CNT+1,2,1	
05644	0774	00	2	00006	AXT	6,2	
05645	0500	00	2	05543	CLA	CTRA+6,2	RELOCATE
05646	0601	00	2	06264	STO	CTRA1+6,2	CHANNEL
05647	2	00001	2	05645	TIX	*-2,2,1	COUNTS
05650	0020	00	4	00001	TRA	1,4	EXIT TO MAIN PROG

\* MODIFY I-O INSTRUCTIONS

05651	0601	00	0	06233	CTX1	STO	ACCX	ACC CONTENTS
05652	0771	00	0	00043		ARS	35	
05653	0602	00	0	06234		SLW	ACCX+1	P+Q BITS
05654	0634	00	1	06235		SXA	ACCX+2,1	
05655	-0634	00	2	06235		SXD	ACCX+2,2	
05656	-0600	00	0	06236		STQ	ACCX+3	
05657	0604	00	0	06237		STI	ACCX+4	SAVE INDICATORS

\* ESTABLISH PROGRAM AREA TO MODIFY

05660	0500	00	4	00001	IOC2	CLA	1,4	L FIRST AND LAST ADDRESS PROGRAM AREA TO BE MODIFIED
05661	0634	00	4	06173		SXA	HALT,4	
05662	0621	00	0	06174		STA	NOW	BEGINNING ADDRESS
05663	0771	00	0	00022		ARS	18	
05664	0621	00	0	05671		STA	CHECK+1	
05665	0621	00	0	05755		STA	RET	
05666	0402	00	0	06174		SUB	NOW	{ OF LOCATIONS TO CHECK
05667	0734	00	1	00000		PAX	0,1	

\* START MODIFICATION OF INSTRUCTIONS

05670	0774	00	2	00006	CHECK	AXT	6,2	
05671	-0500	00	1	00000		CAL	0,1	N LOCATION TO BE CHECK
05672	0602	00	0	06167		SLW	INSTR	SAVE INSTRUCTION
05673	-0320	00	0	06175		ANA	AMASK	MASK OUT ADDRESS
05674	-0340	00	2	06204		LAS	WRS+6,2	LOOK
05675	0020	00	0	05677		TRA	*+2	FOR
05676	0020	00	0	05720		TRA	SECT	SELECT
05677	2	00001	2	05674		TIX	*-3,2,1	RETURN FOR NEXT SELECT
05700	0441	00	0	06167		LDI	INSTR	NOT SELECT-IS IT A BCD WORD

05701	0056	00	006000		RNT 6000	TEST FOR BLANK-2ND POSITION
05702	0020	00	0 05704		TRA *+2	NOT SELECT-NOT BCD WORD
05703	0020	00	0 06111		TRA CBCD	YES-COULD BE BCD WORD
05704	2 00001	1	05670		TIX CHECK,1,1	RETURN TO CHECK NEXT CELL
05705	0534	00	4 06173	EXIT	LXA HALT,4	RESTORE XRC
05706	0441	00	0 06237		LDI ACCX+4	RESTORE INDICATORS
05707	0500	00	0 06234		CLA ACCX+1	
05710	0560	00	0 06233		LDQ ACCX	
05711	0763	00	0 00043		LLS 35	
05712	0560	00	0 06236		LDQ ACCX+3	
05713	0534	00	1 06235		LXA ACCX+2,1	
05714	-0534	00	2 06235		LXD ACCX+2,2	
05715	0600	00	0 06220		STZ SBIT	
05716	0600	00	0 06224		STZ REST	
05717	0020	00	4 00002		TRA 2,4	RETURN TO MAIN PROGRAM
05720	-0500	00	0 06167	SECT	CAL INSTR	WORKING INSTRUCTION
05721	-0320	00	0 06216		ANA MASK3	MASK TO LEAVE CLASS
05722	0402	00	0 06217		SUB TWHD	SUBTRACT TAPE CLASS
05723	0100	00	0 06106		TZE TRSET	YES-ITS A TAPE SELECT
05724	0020	00	0 05756		TRA RET+1	NO-NOT TAPE BRING IN NEXT INSTRUCTION
05725	-0500	00	0 06167	SECT1	CAL INSTR	WORKING INSTRUCTION
05726	-0320	00	0 06204		ANA DMASK	MASK TO LEAVE CHANNEL
05727	0340	00	0 06205		CAS D	
05730	0020	00	0 05736		TRA FIVE	ACC GREATER
05731	0020	00	0 06036		TRA CHAND	ACC EQUAL-CHAN D
05732	0340	00	0 06206		CAS B	ACC LESS
05733	0020	00	0 06025		TRA CHANC	GREATER-CHAN C
05734	0020	00	0 06012		TRA CHANB	EQUAL-CHAN B
05735	0020	00	0 05742		TRA CHANA	LESS-CHAN A
05736	0340	00	0 06207	FIVE	CAS E	
05737	0020	00	0 06046		TRA CHANF	GREATER-CHAN F
05740	0020	00	0 06042		TRA CHANE	EQUAL-CHAN E
05741	0000	00	0 05670		HTR CHECK	ERROR IN DETERMINING WHICH CHANNEL RETURN TO TRY AGAIN
05742	0441	00	0 05531	CHANA	LDI CTRL1	FIRST CONTROL
05743	0056	00	000010		RNT 10	
05744	0020	00	0 05756		TRA RET+1	
05745	-0625	00	0 06250		STL CHECA	
05746	0774	00	4 00006		AXT 6,4	
05747	-0056	00	400000		LNT 400000	CHECK FOR S KEY
05750	-0625	00	0 06220		STL SBIT	NO SIGN-TAPE READ
05751	0056	00	000400		RNT 400	TEST FOR EX. UNIT
05752	0020	00	0 05754		TRA *+2	NO
05753	0020	00	0 06052		TRA DNBIT	YES
05754	0020	00	0 05762		TRA STEP	NO-STEP ADDRESS

05755	0602	00	1	00000	RET	SLW 0,1	
05756	0600	00	0	06220		STZ SBIT	CLEAR SBIT SWITCH
05757	0600	00	0	06222		STZ BCD1	CLEAR BCD SWITCH
05760	0600	00	0	06247		STZ DBIT	CLEAR EXCLUSIVE BIT
05761	0020	00	0	05704		TRA EXIT-1	
05762	-0500	00	0	06167	STEP	CAL INSTR	WORKING INSTRUCTION
05763	-0520	00	0	06222		NZT BCD1	TEST FOR BCD
05764	0020	00	0	05766		TRA *+2	NO
05765	-0320	00	0	06245		ANA MASK8	YES
05766	0602	00	0	06164		SLW HOLD	
05767	-0754	00	0	00000		PXD	CLEAR ACC
05770	0340	00	4	06264		CAS CTRLA+6,4	COMPARE TO UNIT COUNT
05771	0000	00	0	05771		HTR *	ERROR-COUNT IN ERROR
05772	0020	00	0	06002		TRA TSBIT	RESET + START ON HALT
05773	-0500	00	0	06167		CAL INSTR	WORKING INSTRUCTION
05774	-0320	00	0	06221		ANA MASK4	CLEAR ALL BUT UNIT
05775	0734	00	2	00000		PAX 0,2	UNIT IN INDEX
05776	-3	00000	2	06002		TXL TSBIT,2,0	IS IT ZERO
05777	-0500	00	0	06164		CAL HOLD	NO-NOT ZERO
06000	0400	00	0	06214		ADD ONE	STEP UNIT
06001	0020	00	0	05755		TRA RET	
06002	-0500	00	0	06167	TSBIT	CAL INSTR	WORKING INSTRUCTION
06003	-0320	00	0	06215		ANA MASK1	MASK OUT UNIT
06004	-0520	00	0	06222		NZT BCD1	IS IT BCD
06005	-0320	00	0	06245		ANA MASK8	YES
06006	-0520	00	0	06220		NZT SBIT	IS S BIT BIT
06007	0020	00	0	05777		TRA TSBIT-3	NO
06010	0400	00	0	06213		ADD TWO	YES
06011	0020	00	0	05755		TRA RET	
06012	0774	00	4	00005	CHANB	AXT 5,4	
06013	-0625	00	0	06251		STL CHECA+1	
06014	0441	00	0	05531		LDI CTRL1	
06015	0056	00	001000			RNT 1000	TEST FOR CHAN B SELECTION
06016	0020	00	0	05756		TRA RET+1	NO
06017	0056	00	010000			RNT 10000	TEST FOR EXCLUSIVE BIT
06020	0020	00	0	05762		TRA STEP	NO
06021	-0625	00	0	06247		STL DBIT	YES-SET SWITCH
06022	-0046	00	0	00000		PIA	
06023	0771	00	0	00012		ARS 10	
06024	0020	00	0	06055		TRA DNBIT+3	
06025	0774	00	4	00004	CHANC	AXT 4,4	
06026	-0625	00	0	06252		STL CHECA+2	
06027	0441	00	0	05532		LDI CTRL2	
06030	0056	00	000010			RNT 10	TEST FOR CHAN C SELECTION
06031	0020	00	0	05756		TRA RET+1	NO
06032	0056	00	000400			RNT 400	TEST FOR EXCLUSIVE BIT

06033	0020	00	0	05762		TRA STEP	NO
06034	-0625	00	0	06247		STL DBIT	YES-SET SWITCH
06035	0020	00	0	06053		TRA DNBIT+1	
06036	0774	00	4	00003	CHAND	AXT 3,4	
06037	-0625	00	0	06253		STL CHECA+3	
06040	0441	00	0	05532		LDI CTRL2	
06041	0020	00	0	06015		TRA CHANB+3	
06042	0774	00	4	00002	CHANE	AXT 2,4	
06043	-0625	00	0	06254		STL CHECA+4	
06044	0441	00	0	05533		LDI CTRL3	
06045	0020	00	0	06030		TRA CHANC+3	
06046	0774	00	4	00001	CHANF	AXT 1,4	
06047	-0625	00	0	06255		STL CHECA+5	
06050	0441	00	0	05533		LDI CTRL3	
06051	0020	00	0	06015		TRA CHANB+3	
06052	-0625	00	0	06247	DNBIT	STL DBIT	
06053	-0046	00	0	00000		PIA	
06054	0771	00	0	00004		ARS 4	SHIFT TO ADDRESS
06055	-0320	00	0	06221		ANA MASK4	SAVE EX. UNIT
06056	0601	00	0	06240		STO SAVE	
06057	-0520	00	0	06240		NZT SAVE	IS UNIT ZERO
06060	0000	00	0	06060		HTR *	UNIT SELECTED WAS ZERO
06061	-0500	00	0	06167		CAL INSTR	WORKING INSTRUCTION
06062	-0320	00	0	06215		ANA MASK1	CLEAR UNIT
06063	-0520	00	0	06222		NZT BCD1	IS IT BCD
06064	0020	00	0	06066		TRA *+2	NO
06065	-0320	00	0	06245		ANA MASK8	YES
06066	0534	00	2	06240		LXA SAVE,2	UNIT TO INDEX
06067	-3	00001	2	06072		TXL *+3,2,1	IS UNIT ONE
06070	-0501	00	0	06240		ORA SAVE	NO-OR IN UNIT
06071	0020	00	0	05755		TRA RET	
06072	-0520	00	0	06220		NZT SBIT	TEST S BIT
06073	0020	00	0	06070		TRA *-3	NO
06074	0400	00	0	06213		ADD TWO	CHANGE TO UNIT TWO
06075	0020	00	0	05755		TRA RET	
06076	-0500	00	0	06167	RSET	CAL INSTR	WORKING INSTRCUTION
06077	-0320	00	0	06215		ANA MASK1	MASK TO CLEAR UNIT
06100	-0520	00	0	06222		NZT BCD1	DO WE HAVE A BCD WORD
06101	0020	00	0	05755		TRA RET	NO
06102	-0500	00	0	06167		CAL INSTR	BCD WORD
06103	-0320	00	0	06246		ANA MASK9	MASK TO CLEAR UNIT
06104	-0501	00	0	06244		ORA MASK7	OR IN TWO BLANKS
06105	0020	00	0	05755		TRA RET	RETURN
06106	-0520	00	0	06224	TRSET	NZT REST	CHECK RESET CONSTANT
06107	0020	00	0	05725		TRA SECT1	NO-CONTINUE CHECK

06110	0020	00	0	06076		TRA RSET	YES, RESET
06111	0774	00	4	00006	CBCD	AXT 6,4	DEFINE BCD WORD
06112	-0500	00	0	06167		CAL INSTR	WORKING INSTRUCTION
06113	-0320	00	0	06242		ANA MASK5	TAKE OUTUNECESSARY BITS
06114	0602	00	0	06241		SLW SAVE1	SAVE INSTRUCTION
06115	-0340	00	4	06233		LAS BCD2+6,4	POSSIBLE BCD WORD
06116	0020	00	0	06120		TRA *+2	
06117	0020	00	0	06140		TRA TBSET	THIS IS BCD WORD
06120	2 00001	4	06115			TIX *-3,4,1	
06121	0020	00	0	05756		TRA RET+1	NOT BCD
06122	-0500	00	0	06167	BCD10	CAL INSTR	WORKING INSTRUCTION
06123	0771	00	0	00014		ARS 12	SHIFT TO LOW ORDER
06124	-0320	00	0	06243		ANA MASK6	MASK TO LEAVE CHANNEL
06125	0340	00	0	06212		CAS THREE	L +3
06126	0020	00	0	06134		TRA *+6	ACC GREATER
06127	0020	00	0	06025		TRA CHANC	BCD-CHANNEL C
06130	0340	00	0	06213		CAS TWO	ACC LESS
06131	0000	00	0	00000		HTR	ERROR
06132	0020	00	0	06012		TRA CHANB	BCD-CHANNEL B
06133	0020	00	0	05742		TRA CHANA	BCD-CHANNEL A
06134	0340	00	0	06211		CAS FVE	L +5
06135	0020	00	0	06046		TRA CHANF	BCD-CHANNEL F
06136	0020	00	0	06042		TRA CHANE	BCD-CHANNEL E
06137	0020	00	0	06036		TRA CHAND	BCD-CHANNEL D
06140	-0625	00	0	06222	TBSET	STL BCD1	SET SWITCH
06141	-0520	00	0	06224		NZT REST	TEST FOR RESET
06142	0020	00	0	06122		TRA BCD10	NO
06143	0020	00	0	06076		TRA RSET	YES
06144	0774	00	2	00006	RDCNT	AXT 6,2	
06145	0520	00	2	06256		ZET CHECA+6,2	TEST FOR COUNT
06146	0020	00	0	06154		TRA *+6	REDUCTION---YES
06147	2 00001	2	06145			TIX *-2,2,1	NO
06150	0774	00	2	00006		AXT 6,2	CLEAR
06151	0600	00	2	06256		STZ CHECA+6,2	COUNT
06152	2 00001	2	06151			TIX *-1,2,1	AREAS
06153	0020	00	4	00001		TRA 1,4	RETURN
06154	0500	00	2	06264		CLA CTRAl+6,2	CHECK
06155	0100	00	0	06161		TZE *+4	
06156	0402	00	0	06214		SUB ONE	FOR
06157	0601	00	2	06264		STO CTRAl+6,2	REDUCTION
06160	0020	00	0	06150		TRA *-8	OF COUNT
06161	0500	00	2	05543		CLA CTRA+6,2	COUNT IS ZERO
06162	0601	00	2	06264		STO CTRAl+6,2	RESTORE INITIAL
06163	0020	00	0	06147		TRA RDCNT+3	COUNT
06164	+0000000000000				HOLD	OCT 0	
06165	+0000000000004				FOUR	OCT 4	CHAN D

06166	+000000000012		OCT	12	
06167	+000000000000	INSTR	OCT	0	
06170	0000 10 0 00006	KON	HTR	6,0,8	
06171	+000000000017	KON2	OCT	+17	
06172	+000000000001		OCT	+1	
06173	+000000000000	HALT	OCT	0	
06174	+000000000000	NOW	OCT	0	
06175	-377777700000	AMASK	OCT	777777700000	
06176	0766 00 0 00000	WRS	WRS		WRITE SELECT
06177	0762 00 0 00000		RDS		READ SELECT
06200	+076400000000		OCT	076400000000	BACKSPACE RECORD
06201	+077200000000		OCT	077200000000	REWIND
06202	-076400000000		OCT	-764000000000	BACKSPACE FILE
06203	+077000000000		OCT	077000000000	WRITE EOF
06204	+000000007000	DMASK	OCT	7000	
06205	+000000004000	D	OCT	4000	
06206	+000000002000	B	OCT	2000	
06207	+000000005000	E	OCT	5000	
06210	+000000000006	SIX	OCT	6	CHAN F
06211	+000000000005	FVE	OCT	5	CHAN E
06212	+000000000003	THREE	OCT	3	CHAN C
06213	+000000000002	TWO	OCT	2	CHAN B
06214	+000000000001	ONE	OCT	1	CHAN A
06215	-377777777760	MASK1	OCT	777777777760	
06216	+000000000700	MASK3	OCT	700	
06217	+000000000200	TWHD	OCT	200	
06220	+000000000000	SBIT	OCT	0	
06221	+000000000017	MASK4	OCT	17	
06222	+000000000000	BCD1	OCT	0	
06223	+000000000000	BCD	OCT	0	
06224	+000000000000	REST	OCT	0	
06225	+226226006000	BCD2	OCT	226226006000	BSF
06226	+226251006000		OCT	226251006000	BSR
06227	-112566006000		OCT	512566006000	REW
06230	-116322006000		OCT	516322006000	RTB
06231	-262526006000		OCT	662526006000	WEF
06232	-266322006000		OCT	666322006000	WTB
	06233	ACCX	BSS	5	
06240	+000000000000	SAVE	OCT		TEMP STG
06241	+000000000000	SAVE1	OCT		TEMP STG
06242	-377777007700	MASK5	OCT	777777007700	
06243	+000000000007	MASK6	OCT	7	
06244	+000000006060	MASK7	OCT	6060	
06245	-377777777717	MASK8	OCT	777777777717	
06246	-377777770000	MASK9	OCT	777777770000	
06247	+000000000000	DBIT	OCT	0	
	06250	CHECA	BSS	6	
	06256	CTRA1	BSS	6	



				06264		ORG	CTRA1+6	
				06264	A	HED		
06264	0600	00	0	06335		STZ	KONST+3	INDICATE I/O TYPE PRINT OUT
06265	0020	00	0	06270		TRA	ERROR	
06266	0600	00	0	06335		STZ	KONST+3	SET STORAGE TO ZEROS MODIFY INSTRUCTIONS FOR RETURN ADDR TO MAIN PROG
06267	0020	00	0	06317		TRA	MOD	
06270	0600	00	0	06332	ERROR	STZ	KONST	DO NOT REPEAT SECTION
06271	0600	00	0	06333		STZ	KONST+1	IF SENSE SW 4 IS DOWN
06272	0760	00	0	00162		PSE	114	IF SENSE SW 2 IS UP THEN-
06273	0020	00	0	06301		TRA	SSW3	CHECK SSW 3
06274	2	00001	4	06275		TIX	OK,4,1	
06275	-0634	00	4	07354	OK	SXD	LOC+1,4	2'S COMPL OF PROGRAM LOCATION LAST PREFORMED
06276	0760	00	0	00161		PSE	113	IF SENSE SW 1 IS UP THEN
06277	0020	00	0	06304		TRA	RELY	CHECK SS 4
06300	0020	00	4	00001		TRA	1,4	IF DOWN REPEAR SECTION OF PROG
06301	0760	00	0	00163	SSW3	PSE	115	IF SENSE SW 3 IS UP
06302	0020	00	0	06441		TRA	PRINT	PRINT ON ERROR
06303	0000	00	0	06274		HTR	OK-1	IF SS 3 IS DOWN STOP ON ERROR HTR 2'S COMPLEMENT OF INDEX REGISTER C CONTIANS THE ERROR ADDRESS OF THE SECTION OF THE PROG IN ERROR
06304	0760	00	0	00164	RELY	PSE	116	IF SENSE SWITCH 4 IS UP
06305	0020	00	4	00003		TRA	3,4	GO TO NEXT SECTION OF THE PROG IF DOWN REPEAR SECTION OF THE PROGRAM N TIMES OR THE NUMEBR OF TIMES THAT IS SPECIFIED IN LOC KONST+2
06306	0500	00	0	06333		CLA	KONST+1	COUNTER
06307	0402	00	0	06332		SUB	KONST	L+1 REDUCE COUNT BY 1
06310	0601	00	0	06333		STO	KONST+1	
06311	-0100	00	0	06300		TNZ	OK+3	
06312	0500	00	0	06334		CLA	KONST+2	L+50 COUNT CONSTANT

06313	0601	00	0	06333		STO	KONST+1		
06314	0500	00	0	07351		CLA	STOR+7	L+1	
06315	0601	00	0	06332		STO	KONST		
06316	0020	00	4	00003		TRA	3,4	CONT PROG	
06317	0600	00	0	06336	MOD	STZ	KONST+4	SET STORAGE TO ZEROS	
06320	0600	00	0	06333		STZ	KONST+1		
06321	0600	00	0	06332		STZ	KONST		
06322	0760	00	0	00162	ERR	PSE	114	IF SS 2 IS UP CHECK	
06323	0020	00	0	06327		TRA	SSW3A	SENSE SWITHC 3	
06324	0760	00	0	00161	OK2	PSE	113	SSW1 UP-GO TO NEXT ROUTINE	
06325	0020	00	4	00002		TRA	2,4	EXIT	
06326	0020	00	4	00001		TRA	1,4	REPEAT TEST	
06327	0760	00	0	00163	SSW3A	PSE	115	IS SENSE SWITCH 3 IS UP	
06330	0020	00	0	06441		TRA	PRINT	PRINT ERROR	
06331	0000	00	0	06324		HTR	OK2	2'S COMPLEMENT OF XRC CONTIANS THE ERROR ADDR OF SECTION OF PROG LAST EXECUTED	
06332	+0000000000001				KONST	OCT	1		
06333	+0000000000050					OCT	50		
06334	+0000000000050					OCT	50	COUNT CONSTANT	
06335	+0000000000001					OCT	1		
06336	+0000000000001					OCT	1		
06337	0020	00	0	06274		TRA	OK-1	EXIT FROM PRINT PROG	
06340	0020	00	0	06324		TRA	OK2	EXIT FROM PRINT WHEN ENTRY IS TO ERROR-1	
06341	+0000000000001					OCT	1		
06342	+0000000000000				WDNO	OCT			
06343	+0000000000000				RECNO	OCT			
PUT DSC REDUNDANCY CHECKS IN PRINT RECORD									
06344	0601	00	0	07342	RDNCK	STO	STOR	ACC CONTENTS	
06345	0771	00	0	00043		ARS	35		
06346	0602	00	0	07345		SLW	STOR+3	OVFL BITS P + Q	
06347	-0600	00	0	07343		STQ	STOR+1	MQ CONTENTS	
06350	-0500	00	0	07415		CAL	MASK+9	RESET RECORD IMAGE	
06351	0320	00	0	07337		ANS	REC4R+9	INDICATIONS	
06352	-0500	00	0	07403		CAL	BIT2+3		
06353	0602	00	0	07336		SLW	REC4R+8	FOR REDUNDANCY TAPE CK	
06354	0602	00	0	06341		SLW	KONST+7	PUT A BIT IN WORD	
06355	0060	00	0	06355		TCOA	*	CHECK CHAN IN OPERATION	
06356	0061	00	0	06356		TCOB	*	CHECK CHAN IN OPERATION	
06357	0062	00	0	06357		TCOC	*	CHECK CHAN IN OPERATION	
06360	0063	00	0	06360		TCOD	*	CHECK CHAN IN OPERATION	

06361	0064	00	0	06361		TCOE *	CHECK CHAN IN OPERATION
06362	0065	00	0	06362		TCOF *	CHECK CHAN IN OPERATION
06363	-0500	00	0	07375	CHK4A	CAL BIT+10	
06364	0771	00	0	00001		ARS 1	
06365	0022	00	0	06370		TRCA CHK4B-1	REDUNDANT TAPE CK DSCA
06366	-0602	00	0	07337		ORS REC4R+9	NO
06367	0020	00	0	06371		TRA CHK4B	
06370	-0602	00	0	07336		ORS REC4R+8	YES
06371	-0500	00	0	07401	CHK4B	CAL BIT2+1	
06372	0771	00	0	00001		ARS 1	
06373	-0022	00	0	06376		TRCB CHK4C-1	RND TAPE CK DSC-B
06374	-0602	00	0	07337		ORS REC4R+9	NO
06375	0020	00	0	06377		TRA CHK4C	
06376	-0602	00	0	07336		ORS REC4R+8	YES
06377	-0500	00	0	07364	CHK4C	CAL BIT+1	
06400	0771	00	0	00003		ARS 3	
06401	0024	00	0	06404		TRCC CHK4D-1	RND TAPE CK DSC-C
06402	-0602	00	0	07337		ORS REC4R+9	NO
06403	0020	00	0	06405		TRA CHK4D	
06404	-0602	00	0	07336		ORS REC4R+8	YES
06405	-0500	00	0	07373	CHK4D	CAL BIT+8	
06406	0771	00	0	00001		ARS 1	
06407	-0024	00	0	06412		TRCD CHK4E-1	RND TAPE CK DSC-D
06410	-0602	00	0	07337		ORS REC4R+9	NO
06411	0020	00	0	06413		TRA CHK4E	
06412	-0602	00	0	07336		ORS REC4R+8	YES
06413	-0500	00	0	07374	CHK4E	CAL BIT+9	
06414	0771	00	0	00001		ARS 1	
06415	0026	00	0	06420		TRCE CHK4F-1	RND TAPE CK DSC-E
06416	-0602	00	0	07337		ORS REC4R+9	NO
06417	0020	00	0	06421		TRA CHK4F	
06420	-0602	00	0	07336		ORS REC4R+8	YES
06421	-0500	00	0	07351	CHK4F	CAL STOR+7	
06422	-0026	00	0	06425		TRCF CHK4F+4	RND TAPE CK DSC-F
06423	-0602	00	0	07337		ORS REC4R+9	NO
06424	0020	00	0	06426		TRA CHK4F+5	
06425	-0602	00	0	07336		ORS REC4R+8	YES
06426	0500	00	0	07336		CLA REC4R+8	WAS THERE A REDUNDANCY TAPE CHECK ON ANY CHAN
06427	0402	00	0	07403		SUB BIT2+3	IF NOT-RETURN TO MAIN
06430	0100	00	0	06432		TZE CONT	PROGRAM-OK
06431	0600	00	0	06341		STZ KONST+7	
06432	0500	00	0	07345	CONT	CLA STOR+3	RESET REGISTERS
06433	0560	00	0	07342		LDQ STOR	
06434	0763	00	0	00043		LLS 35	
06435	0560	00	0	07343		LDQ STOR+1	
06436	0520	00	0	06341		ZET KONST+7	
06437	0020	00	4	00002		TRA 2,4	CONTINUE PROG

06440	0020	00	0	06266		TRA ERROR-2	TAPE CHECK REDUNDANCY INTERROGATE SENSE SWITCHES
06441	0601	00	0	07342	PRINT	STO STOR	PRINT ROUTINE ACC CONTENTS
06442	0771	00	0	00043		ARS 35	
06443	0602	00	0	07345		SLW STOR+3	OV FL BITS
06444	0754	00	2	00002		PXA 2,2	
06445	0621	00	0	07344		STA STOR+2	XRB
06446	-0634	00	1	07344		SXD STOR+2,1	PLACE XRA INTO DECR
06447	-0634	00	4	07345		SXD STOR+3,4	PLACE XRC INTO DECR
06450	-0600	00	0	07343		STQ STOR+1	MQ CONTENTS
06451	0500	00	0	07347	CHK1	CLA STOR+5	L 100000
06452	0760	00	0	00012		DCT	DIV CK TEST
06453	-0602	00	0	07345		ORS STOR+3	YES
06454	0771	00	0	00003		ARS 3	
06455	-0140	00	0	06457		TNO CHK4-1	ACC OV FL-YES
06456	-0602	00	0	07345		ORS STOR+3	NO
06457	0760	00	0	00000		CLM	SENSE SWITCHES
06460	0534	00	1	07352	CHK4	LXA STOR+8,1	L +4
06461	0767	00	0	00003		ALS 3	
06462	-0760	00	1	00145		MSE 101,1	
06463	0020	00	0	06466		TRA *+3	
06464	0400	00	0	07351		ADD STOR+7	L +1
06465	0760	00	1	00145		PSE 101,1	RESET LITES
06466	2	00001	1	06461		TIX CHK4+1,1,1	
06467	0534	00	1	07350	CHK3	LXA STOR+6,1	L +6
06470	0767	00	0	00003		ALS 3	
06471	0760	00	1	00167		PSE 119,1	
06472	0020	00	0	06474		TRA CHK3+5	
06473	0400	00	0	07351		ADD STOR+7	L +1
06474	2	00001	1	06470		TIX CHK3+1,1,1	
06475	0602	00	0	07346		SLW STOR+4	RETAIN PSE + MSE INDICATIONS WAS ENTRY FROM SUB-
06476	0500	00	0	06336	CHK3A	CLA KONST+4	ROUTINE AT ERROR-1
06477	0100	00	0	06505		TZE CHK3A+7	YES
06500	0500	00	0	06444		CLA PRINT+3	NO
06501	0621	00	0	06513		STA CHK5+1	RESET ADDR
06502	0500	00	0	06337		CLA KONST+5	
06503	0601	00	0	07074		STO EXIT	
06504	0020	00	0	06512		TRA CHK5	
06505	0500	00	0	07351		CLA STOR+7	L+1
06506	0601	00	0	06336		STO KONST+4	
06507	0621	00	0	06513		STA CHK5+1	
06510	0500	00	0	06340		CLA KONST+6	
06511	0601	00	0	07074		STO EXIT	

				OBTAIN TEST LOC AND ERROR ADDR	
06512	-0534	00 4	07345	CHK5	LXD STOR+3,4 XRC
06513	-0754	00 4	00002		PXD 2,4
06514	0760	00 0	00006		COM
06515	0400	00 0	07402		ADD BIT2+2 +1 TO DECREMENT
06516	0622	00 0	07353		STD LOC ERROR ADDR INTO DECR
06517	0771	00 0	00022		ARS 18
06520	0402	00 0	06513		SUB CHK5+1 L +2
06521	0621	00 0	06522		STA CHK6
06522	-0500	00 0	00000	CHK6	CAL 0 PLACE
06523	0621	00 0	07353		STA LOC TEST LOC INTO ADDR
06524	0630	00 0	07353		STP LOC
				OBTAIN OPN OF INST	
06525	0402	00 0	07351		SUB STOR+7 L +1
06526	0621	00 0	06527		STA *+1
06527	0560	00 0	00000		LDQ 0 BCD OPERATION
06530	0534	00 1	07350	CHK7	LXA STOR+6,1 L +6
06531	0760	00 0	00000		CLM
06532	-0763	00 0	00002		LGL 2
06533	0734	00 4	00000		PAX 0,4 ZONE BIT
06534	-0763	00 0	00004		LGL 4
06535	0340	00 0	07365		CAS BIT+2 CHECK FOR BLANK L +60
06536	0020	00 0	06540		TRA *+2
06537	0020	00 0	06553		TRA CHK7A YES
06540	0340	00 0	07374		CAS BIT+9 CHECK FOR HYPHEN
06541	0020	00 0	06543		TRA *+2
06542	0020	00 0	07200		TRA TRAP YES- INDICATES A TRAP ROUTINE
06543	-0320	00 0	07376		ANA BIT+11 MASK FOR NUMERIC
06544	0734	00 2	00000		PAX 0,2
06545	3 00012	2 2	06553		TXH CHK7A,2,10 IGNORE SPECIAL CHARS
06546	0500	00 0	07364		CLA BIT+1 COL INDICATOR
06547	0771	00 1	00006		ARS 6,1
06550	-0602	00 2	07213		ORS REC1L+9,2
06551	-3 00000	4 4	06553		TXL *+2,4
06552	-0602	00 4	07216		ORS REC1L+12,4
06553	2 00001	1 1	06531	CHK7A	TIX CHK7+1,1,1
06554	0560	00 0	00000	CHK8	LDQ 0
06555	0534	00 1	07366		LXA BIT+3,1 L +14
06556	0074	00 2	07165		TSX CH22,2
06557	-0500	00 0	07375		CAL BIT+10 COL IND
06560	0771	00 1	00014		ARS 12,1
06561	-0602	00 4	07227		ORS REC1R+9,4
06562	2 00001	1 1	06556		TIX *-4,1,1
06563	-0500	00 0	07353	CH1	CAL LOC PUT TEST LOC INTO IMAGE
06564	0765	00 0	00017		LRS 15
06565	0534	00 1	07360		LXA LOC+5,1 L +5
06566	0074	00 2	07161		TSX CH21,2

06567	-0500	00	0	07363		CAL BIT	BIT COLUMN 10
06570	0771	00	1	00005		ARS 5,1	
06571	-0602	00	4	07213		ORS REC1L+9,4	
06572	2 00001	1		06566		TIX CH1+3,1,1	
PUT ERROR ADDR INTO IMAGE							
06573	-0534	00	4	07353	CH5	LXD LOC,4	
06574	-0754	00	4	00000		PXD 0,4	
06575	0765	00	0	00041		LRS 33	
06576	0534	00	1	07360		LXA LOC+5,1	L +5
06577	0074	00	2	07161		TSX CH21,2	
06600	-0500	00	0	07361		CAL LOC+6	-0
06601	0771	00	1	00006		ARS 6,1	
06602	-0602	00	4	07227		ORS REC1R+9,4	
06603	2 00001	1		06577		TIX CH5+4,1,1	
PUT PSE SW INTO							
06604	-0500	00	0	07346	CH7	CAL STOR+4	IMAGE
06605	0765	00	0	00022		LRS 18	
06606	0534	00	1	07350		LXA STOR+6,1	L +6
06607	0074	00	2	07161		TSX CH21,2	
06610	-0500	00	0	07374		CAL BIT+9	
06611	0771	00	1	00006		ARS 6,1	
06612	-0602	00	4	07227		ORS REC1R+9,4	
06613	2 00001	1		06607		TIX CH7+3,1,1	
06614	0534	00	4	07366	CH10	LXA BIT+3,4	PUT 1ST REC IN PR IMAGE
06615	0534	00	1	07357		LXA LOC+4,1	L +30
06616	-0500	00	4	07216		CAL REC1L+12,4	LEFT HALF IMAGE
06617	0602	00	1	07477		SLW PR+24,1	
06620	-0500	00	4	07232		CAL REC1R+12,4	
06621	0602	00	1	07500		SLW PR+25,1	
06622	2 00001	4		06623		TIX CH10+7,4,1	
06623	2 00002	1		06616		TIX CH10+2,1,2	
06624	0534	00	4	07366	CH11	LXA BIT+3,4	MASK IMAGE
06625	-0500	00	0	07404		CAL MASK	MASK
06626	0320	00	4	07216		ANS REC1L+12,4	
06627	-0500	00	0	07405		CAL MASK+1	
06630	0320	00	4	07232		ANS REC1R+12,4	
06631	-0500	00	0	07406		CAL MASK+2	MASK LEFT HALF
06632	0320	00	4	07246		ANS REC2L+12,4	2ND RECORD
06633	-0500	00	0	07407		CAL MASK+3	MASK RIGHT HALF
06634	0320	00	4	07262		ANS REC2R+12,4	
06635	-0500	00	0	07410		CAL MASK+4	MASK 3RD RECORD
06636	0320	00	4	07276		ANS REC3L+12,4	LEFT HALF
06637	-0500	00	0	07411		CAL MASK+5	
06640	0320	00	4	07312		ANS REC3R+12,4	
06641	-0500	00	0	07414		CAL MASK+8	MASK IND KEYS
06642	0320	00	4	07326		ANS REC4L+12,4	PRINT REC
06643	-0500	00	0	07412		CAL MASK+6	
06644	0320	00	4	07432		ANS P92+1,4	I/O IMAGE
06645	-0500	00	0	07413		CAL MASK+7	REC=, WORD =, ETC

06646	0320	00	4	07446		ANS	P95+1,4	
06647	2	00001	4	06625		TIX	CH11+1,4,1	
06650	0766	00	0	01361	CH14	WRS	753	PRINTER
06651	0760	00	0	01363		SPRA	3	DOUBLE REM PRINT FIRST LINE TEST LOC, ERROR ADDR
06652	0074	00	1	07172		TSX	WPRA+1,1	
06653	0500	00	0	07353		CLA	LOC	
06654	-0120	00	0	07062		TMI	CH35-6	
06655	0500	00	0	07346	CH18	CLA	STOR+4	PUT MSE LITES INTO IMAGE
06656	0765	00	0	00036		LRS	30	
06657	0534	00	1	07352		LXA	STOR+8,1	L +4
06660	0074	00	2	07161		TSX	CH21,2	
06661	-0500	00	0	07377		CAL	BIT+12	BIT COL 6
06662	0771	00	1	00004		ARS	4,1	
06663	-0602	00	4	07243		ORS	REC2L+9,4	
06664	-0500	00	0	07371		CAL	BIT+6	BIT COL 5
06665	0771	00	1	00004		ARS	4,1	
06666	-0602	00	4	07427		ORS	P92-2,4	
06667	2	00001	1	06660		TIX	CH18+3,1,1	
06670	0500	00	0	06335		CLA	KONST+3	IS THIS A MAIN FRAME
06671	0100	00	0	07075		TZE	CH41	PRINT OUT -NO FORM CARD IMAGE FOR 2ND REC
06672	0500	00	0	07344	CH15	CLA	STOR+2	
06673	0765	00	0	00041		LRS	33	
06674	0534	00	1	07352		LXA	STOR+8,1	L +4
06675	0074	00	2	07161		TSX	CH21,2	
06676	-0500	00	0	07370		CAL	BIT+5	BIT COLUMN
06677	0771	00	1	00004		ARS	4,1	
06700	-0602	00	4	07243		ORS	REC2L+9,4	
06701	2	00001	1	06675		TIX	CH15+3,1,1	
06702	0074	00	2	07161		TSX	CH21,2	
06703	-0500	00	0	07361		CAL	LOC+6	L-0
06704	-0602	00	4	07257		ORS	REC2R+9,4	
06705	0074	00	2	07161	CH16	TSX	CH21,2	
06706	0534	00	1	07360		LXA	LOC+5,1	L +5
06707	0074	00	2	07161		TSX	CH21,2	
06710	-0500	00	0	07400		CAL	BIT2	BIT COL 8
06711	0771	00	1	00005		ARS	5,1	
06712	-0602	00	4	07257		ORS	REC2R+9,4	BIT IN IMAGE
06713	2	00001	1	06707		TIX	CH16+2,1,1	
06714	0500	00	0	07345	CH17	CLA	STOR+3	PUT XRC INTO IMAGE
06715	0765	00	0	00041		LRS	33	
06716	0534	00	1	07360		LXA	LOC+5,1	L +5
06717	0074	00	2	07161		TSX	CH21,2	
06720	-0500	00	0	07401		CAL	BIT2+1	BIT IN COL 19
06721	0771	00	1	00005		ARS	5,1	
06722	-0602	00	4	07257		ORS	REC2R+9,4	BIT IN IMAGE

06723	2	00001	1	06717		TIX	CH17+3,1,1	
06724	0560	00	0	07343	CH27	LDQ	STOR+1	CONTENTS OF MQ
06725	0534	00	1	07366		LXA	BIT+3,1	L +14
06726	0074	00	2	07165		TSX	CH22,2	
06727	-0500	00	0	07375		CAL	BIT+10	BIT COL 15
06730	0771	00	1	00014		ARS	12,1	
06731	-0602	00	4	07243		ORS	REC2L+9,4	
06732	2	00001	1	06726		TIX	CH27+2,1,1	
06733	-0500	00	0	07356		CAL	LOC+3	WAS ROUTINE USING TRAP
06734	0402	00	0	07374		SUB	BIT+9	
06735	-0100	00	0	06741		TNZ	*+4	NO
06736	-0500	00	0	07351		CAL	STOR+7	L +1
06737	-0602	00	0	07256		ORS	REC2R+8	
06740	0020	00	0	06743		TRA	*+3	
06741	-0500	00	0	07351		CAL	STOR+7	L +1
06742	-0602	00	0	07257		ORS	REC2R+9	
06743	0600	00	0	07356		STZ	LOC+3	
06744	0534	00	4	07366	CH23	LXA	BIT+3,4	
06745	0534	00	1	07357		LXA	LOC+4,1	L +30
06746	-0500	00	4	07246		CAL	REC2L+12,4	LEFT HALF
06747	0602	00	1	07477		SLW	PR+24,1	
06750	-0500	00	4	07262		CAL	REC2R+12,4	RIGHT HALF IMAGE
06751	0602	00	1	07500		SLW	PR+25,1	
06752	2	00001	4	06753		TIX	CH23+7,4,1	
06753	2	00002	1	06746		TIX	CH23+2,1,2	
06754	0074	00	1	07171		TSX	WPRA,1	PRINT 2ND LINE
06755	-0500	00	0	07345	CH20	CAL	STOR+3	PUT TRGS INTO
06756	0765	00	0	00022		LRS	18	IMAGE
06757	0074	00	2	07161		TSX	CH21,2	
06760	-0500	00	0	07351		CAL	STOR+7	BIT IN 35
06761	-0602	00	4	07273		ORS	REC3L+9,4	INDICATE DIV CK
06762	0074	00	2	07161		TSX	CH21,2	
06763	-0500	00	0	07367		CAL	BIT+4	BIT COL 12
06764	0771	00	0	00001		ARS	1	
06765	-0602	00	4	07307		ORS	REC3R+9,4	ACC OVFL
06766	0760	00	0	00000	CH24	CLM		PUT Q + P BITS
06767	0763	00	0	00013		LLS	11	INTO IMAGE
06770	0734	00	4	00000		PAX	0,4	
06771	-0500	00	0	07367		CAL	BIT+4	BIT IN COL 4
06772	0767	00	0	00002		ALS	2	
06773	-0602	00	4	07273		ORS	REC3L+9,4	Q BIT
06774	0760	00	0	00000		CLM		GET P BIT
06775	0763	00	0	00001		LLS	1	
06776	0734	00	4	00000		PAX	0,4	
06777	-0500	00	0	07367		CAL	BIT+4	
07000	0771	00	0	00002		ARS	2	BIT IN COL 13



07001	-0602	00	4	07273		ORS REC3L+9,4	
07002	0560	00	0	07342	CH25	LDQ STOR	
07003	-0500	00	0	07371		CAL BIT+6	PUT + SIGN OF
07004	0162	00	0	07007		TQP CH25+5	ACC IN IMAGE
07005	-0602	00	0	07274		ORS REC3L+10	MINUS SIGN OF ACC IN IMAGE
07006	0020	00	0	07010		TRA CH26	
07007	-0602	00	0	07275		ORS REC3L+11	INTO IMAGE
07010	0534	00	1	07366	CH26	LXA BIT+3,1	L +14
07011	0074	00	2	07165		TSX CH22,2	
07012	-0500	00	0	07375		CAL BIT+10	BIT COL 15
07013	0771	00	1	00014		ARS 12,1	
07014	-0602	00	4	07273		ORS REC3L+9,4	
07015	2 00001	1	1	07011		TIX CH26+1,1,1	
07016	0534	00	4	07366	CH30	LXA BIT+3,4	PUT 3RD REC INTO
07017	0534	00	1	07357		LXA LOC+4,1	PRINT IMAGE
07020	-0500	00	4	07276		CAL REC3L+12,4	LEFT HALF
07021	0602	00	1	07477		SLW PR+24,1	
07022	-0500	00	4	07312		CAL REC3R+12,4	RIGHT HALF
07023	0602	00	1	07500		SLW PR+25,1	
07024	2 00001	4	1	07025		TIX CH30+7,4,1	
07025	2 00002	1	1	07020		TIX CH30+2,1,2	
07026	0074	00	1	07171		TSX WPRA,1	PRINT 3RD LINE
						PUT INDICATORS IN REC	
07027	0604	00	0	07447	CH32	STI PR	STORE INDICATORS
07030	0560	00	0	07447		LDQ PR	INDICATOR FROM STORAGE
07031	0534	00	1	07366		LXA BIT+3,1	L +14
07032	0074	00	2	07165		TSX CH22,2	
07033	-0500	00	0	07371		CAL BIT+6	
07034	0771	00	1	00015		ARS 13,1	
07035	-0602	00	4	07323		ORS REC4L+9,4	INDICATORS INTO
07036	2 00001	1	1	07032		TIX CH32+3,1,1	PRINT RECORD
						PUT CONTENT OF KEYS IN	
07037	0760	00	0	00004	CH33	ENK	PRINT RECORD
07040	0534	00	1	07366		LXA BIT+3,1	L +14
07041	0074	00	2	07165		TSX CH22,2	
07042	-0500	00	0	07364		CAL BIT+1	
07043	0771	00	1	00020		ARS 16,1	
07044	-0602	00	4	07323		ORS REC4L+9,4	KEYS CONTENTS INTO
07045	2 00001	1	1	07041		TIX CH33+2,1,1	PRINT REC
07046	0534	00	4	07366	CH34	LXA BIT+3,4	L+14 PUT 4TH REC INTO PRINT IMAGE
07047	0534	00	1	07357		LXA LOC+4,1	L +30
07050	-0500	00	4	07326		CAL REC4L+12,4	
07051	0602	00	1	07477		SLW PR+24,1	
07052	-0500	00	4	07342		CAL REC4R+12,4	TAPE CHECK INDICATORS
07053	0602	00	1	07500		SLW PR+25,1	
07054	0520	00	0	06341		ZET KONST+7	
07055	0600	00	1	07500		STZ PR+25,1	
07056	2 00001	4	1	07057		TIX *+1,4,1	
07057	2 00002	1	1	07050		TIX CH34+2,1,2	

07060	0074	00	1	07171		TSX WPRA,1	PRINT CONTENTS OF INDS
07061	0500	00	0	07351		CLA STOR+7	L+1
07062	0601	00	0	06335		STO KONST+3	RESET ACC + MQ CONTENTS
07063	0601	00	0	06341		STO KONST+7	
07064	0500	00	0	07345		CLA STOR+3	OVFL BITS
07065	0560	00	0	07342		LDQ STOR	ACC CONTENTS
07066	0763	00	0	00043		LLS 35	
07067	0560	00	0	07343		LDQ STOR+1	
07070	0534	00	2	07344	CH35	LXA STOR+2,2	XRB
07071	-0534	00	1	07344		LXD STOR+2,1	XRA
07072	-0534	00	4	07345		LXD STOR+3,4	XRC
07073	0140	00	0	07074		TOV EXIT	
07074	0020	00	0	06274	EXIT	TRA OK-1	
07075	0500	00	0	06341	CH41	CLA KONST+7	IS THIS A REDUNDANCY TAPE CK PRINT-OUT
07076	0100	00	0	07027		TZE CH32	YES
07077	0534	00	1	07357		LXA LOC+4,1	CLEAR RECORD IMAGE LOC +30
07100	0600	00	1	07477		STZ PR+24,1	
07101	2	00001	1	07100		TIX *-1,1,1	
07102	-0500	00	0	07343		CAL STOR+1	WORD GENERATED
07103	0602	00	0	07470	CH43	SLW PR+17	
07104	0760	00	0	00006		COM	
07105	0602	00	0	07472		SLW PR+19	PRINT IMAGE
07106	0534	00	1	07366		LXA BIT+3,1	L +14
07107	0534	00	2	07357		LXA LOC+4,2	LOC +30
07110	-0500	00	1	07432		CAL P92+1,1	
07111	0602	00	2	07477		SLW PR+24,2	
07112	2	00001	1	07113		TIX CH43+8,1,1	
07113	2	00002	2	07110		TIX CH43+5,2,2	
07114	0074	00	1	07175		TSX WPR,1	PRINT WORD GENERATED
07115	0500	00	0	07344	CH45	CLA STOR+2	
07116	0771	00	0	00022		ARS 18	
07117	0402	00	0	06342		SUB WDNO	WORD NUMBER
07120	0765	00	0	00017		LRS 15	
07121	0534	00	1	07360		LXA LOC+5,1	L+5
07122	0074	00	2	07161	CH46	TSX CH21,2	
07123	-0500	00	0	07372		CAL BIT+7	BIT COL 17
07124	0771	00	1	00005		ARS 5,1	
07125	-0602	00	4	07443		ORS P93,4	WORD NUMBER INTO
07126	2	00001	1	07122		TIX CH46,1,1	IMAGE
07127	0534	00	2	07344	CH47	LXA STOR+2,2	XRB
07130	0760	00	0	00000		CLM	
07131	0754	00	2	00000		PXA 0,2	

07132	0402	00	0	06343		SUB RECNO	RECORD NUMBER
07133	0765	00	0	00017		LRS 15	
07134	0534	00	1	07360		LXA LOC+5,1	L+5
07135	0074	00	2	07161	CH48	TSX CH21,2	
07136	-0500	00	0	07371		CAL BIT+6	BIT COL 5
07137	0771	00	1	00005		ARS 5,1	
07140	-0602	00	4	07443		ORS P93,4	
07141	2 00001	1	1	07135		TIX CH48,1,1	
07142	0534	00	1	07357	CH49	LXA LOC+4,1	L +30
07143	0600	00	1	07477		STZ PR+24,1	
07144	2 00001	1	1	07143		TIX *-1,1,1	
07145	-0500	00	0	07342		CAL STOR	WORD READ
07146	0602	00	0	07470	CH50	SLW PR+17	
07147	0760	00	0	00006		COM	
07150	0602	00	0	07472		SLW PR+19	
07151	0534	00	1	07366	CH51	LXA BIT+3,1	L +14
07152	0534	00	2	07357		LXA LOC+4,2	L +30
07153	-0500	00	1	07446		CAL P95+1,1	
07154	0602	00	2	07477		SLW PR+24,2	
07155	2 00001	1	1	07156		TIX CH51+5,1,1	
07156	2 00002	2	2	07153		TIX CH51+2,2,2	
07157	0074	00	1	07175		TSX WPR,1	PRINT WORD WRITTEN
07160	0020	00	0	07027		TRA CH32	PRINT INDICATORS AND KEYS
07161	0760	00	0	00000	CH21	CLM	
07162	0763	00	0	00003		LLS 3	
07163	0734	00	4	00000		PAX 0,4	
07164	0020	00	2	00001		TRA 1,2	
07165	0760	00	0	00000	CH22	CLM	
07166	-0763	00	0	00003		LGL 3	
07167	0734	00	4	00000		PAX 0,4	
07170	0020	00	2	00001		TRA 1,2	
07171	0766	00	0	01361	WPRA	WPRA	
07172	0540	00	0	07446		RCHA CTWD	
07173	0060	00	0	07173		TCOA *	
07174	0020	00	1	00001		TRA 1,1	EXIT
07175	0766	00	0	01361	WPR	WPRA	
07176	0760	00	0	01364		SPRA 4	
07177	0020	00	0	07172		TRA WPRA+1	
07200	0601	00	0	07356	TRAP	STO LOC+3	
07201	0020	00	0	06553		TRA CHK7A	
07202	+0000000000320				REC1L	OCT 320,10001000,1000000	
07203	+000010001000						
07204	+000001000000						
07205	+004002000042					OCT 4002000042,200000400400	
07206	+200000400400						

07207	+000000000000		OCT 0,452010001005
07210	-052010001005		
07211	+100000000000		OCT 100000000000,0,540010001000
07212	+000000000000		
07213	-140010001000		
07214	+014003400366		OCT 14003400366,202000000401
07215	+202000000401		
07216	+000000000000	REC1R	OCT 0,4000001000,0,100000200
07217	+004000001000		
07220	+000000000000		
07221	+000100000200		
07222	+000000000000		OCT 0,0,4240001000,400,0
07223	+000000000000		
07224	+004240001000		
07225	+000000000400		
07226	+000000000000		
07227	+005000001600		OCT 5000001600,000300000000
07230	+000300000000		
07231	+000040000000		OCT 40000000
07232	+200000000100	REC2L	OCT 200000000100,440001000
07233	+000440001000		
07234	+000000000200		OCT 200,0,40000000000
07235	+000000000000		
07236	+040000000000		
07237	+000100000000		OCT 100000000
07240	-100400001000		OCT -500400001000,0,40
07241	+000000000000		
07242	+000000000040		
07243	+100400001200		OCT 100400001200
07244	-000140000100		OCT -400140000100
07245	+240000000040		OCT 240000000040
07246	+020004000404	REC2R	OCT 20004000404
07247	+200040010000		OCT 200040010000
07250	+040010000110		OCT 40010000110,0,0,0
07251	+000000000000		
07252	+000000000000		
07253	+000000000000		
07254	+200042011020		OCT 200042011020
07255	+010000000000		OCT 10000000000,200
07256	+000000000200		
07257	+240050011020		OCT 240050011020
07260	+020004000504		OCT 20004000504,10002000210
07261	+010002000210		
07262	+000000000100	REC3L	OCT 100,14420001000
07263	+014420001000		
07264	+000200000000		OCT 200000000,0,40,200
07265	+000000000000		
07266	+000000000040		
07267	+000000000200		
07270	+310420001010		OCT 310420001010,4,-0
07271	+000000000004		
07272	-000000000000		
07273	+010420001040		OCT 10420001040,4200000004
07274	+004200000004		
07275	-300000000310		OCT -700000000310

07276	+000000000000	REC3R	OCT 0,-400040000000,0	
07277	-000040000000			
07300	+000000000000			
07301	+005000000000		OCT 5000000000,2000000000,0	
07302	+002000000000			
07303	+000000000000			
07304	-060440000000		OCT -460440000000,0	
07305	+000000000000			
07306	1 00000 0 00000		PON	
07307	-002040000000		OCT -402040000000	
07310	+004400000000		OCT 4400000000,161000000000	
07311	+161000000000			
07312	-000000000000	REC4L	OCT -0,1040000,0,0	
07313	+000001040000			
07314	+000000000000			
07315	+000000000000			
07316	+200000100000		OCT 200000100000,100000000000	
07317	+100000000000			
07320	+000001000000		OCT 1000000,40000220000,0	
07321	+040000220000			
07322	+000000000000			
07323	+040001060000		OCT 40001060000,200000200000	
07324	+200000200000			
07325	-100000100000		OCT -500000100000	
07326	+000000000000	REC4R	OCT 0,400002104210	
07327	-000002104210			
07330	+040000000000		OCT 40000000000,4	
07331	+0000000000004			
07332	+020000000100		OCT 20000000100,500002000	
07333	+000500002000			
07334	-204002144210		OCT -604002144210,2201000000	
07335	+002201000000			
07336	+100020000000		OCT 100020000000,-600302104210	
07337	-200302104210			
07340	+043000000000		OCT 043000000000,124521042104	
07341	+124521042104			
07342	+000000000000	STOR	OCT 0 ACC CONTENTS	
07343	+000000000000		OCT 0 MQ CONTENTS	
07344	+000000000000		OCT 0 XRA AND XRB	
07345	+000000000000		OCT 0 XRC, OVRL TRGS, TAPE CK	
07346	+000000000000		OCT 0 PSE + MSE VALUES	
07347	+000000100000		OCT 100000	
07350	+0000000000006		OCT +6	
07351	+0000000000001		OCT +1	
07352	+0000000000004		OCT +4	
07353	+000000000000	LOC	OCT 0 TEST LOC + ERROR ADDR	
07354	+000000000000		OCT 0 DECREMENT CONTAINS 2,5	
* COMPLEMENT OF LAST ROUTINE PREFORMED				
07355	+000000000000		OCT 0 +0	
07356	+000000000000		OCT 0 TRAP ROUTINE INDICATOR	
07357	+0000000000030		OCT +30	
07360	+0000000000005		OCT 5	
07361	-000000000000		OCT -0	
07362	+0000000000007		OCT 7	
07363	+000400000000	BIT	OCT 400000000 BIT COL 10	
07364	+000000100000		OCT 100000 BIT COL 21	

07365	+0000000000060		OCT	60	
07366	+0000000000014		OCT	14	
07367	+0002000000000		OCT	200000000	BIT COL 11
07370	+0000000000010		OCT	10	BIT COL 33
07371	+0200000000000		OCT	02000000000	BIT COL 5
07372	+0000020000000		OCT	2000000	BIT COL 17
07373	+0000000010000		OCT	1000	BIT COL 27
07374	+0000000000040		OCT	40	BIT COL 31
07375	+0000100000000		OCT	10000000	BIT COL 15
07376	+0000000000017		OCT	17	
07377	+0100000000000		OCT	01000000000	
07400	+0020000000000	BIT2	OCT	00200000000	BIT COL 8
07401	+0000004000000		OCT	400000	BIT COL 19
07402	+0000010000000		OCT	1000000	
07403	+1000200000000		OCT	10002000000	
07404	-377017601777	MASK	OCT	777017601777	TEST LOC ETC
07405	-007760001700		OCT	407760001700	
07406	-360760001760		OCT	-760760001760	MQ ETC
07407	+374077017776		OCT	374077017776	
					MAKE FOR REC3
07410	-356720001776		OCT	-756720001776	ACC AND TRIGGER
07411	-3776700000000		OCT	-777670000000	
07412	-3417777777777		OCT	-7417777777777	I/O ETC
07413	-3407740777777		OCT	-7407740777777	
07414	-3600017600000		OCT	-7600017600000	MASK FOR 4TH REC
07415	-377773567356		OCT	-777773567356	MASK
07416	+000003204020		OCT	000003204020	
07417	+0010001000000		OCT	1000100000,20000400	
07420	+0000200004000				
07421	+0001004300000		OCT	00100430000	
07422	+100004000342		OCT	100004000342,-400040002001	
07423	-000040002001				
07424	+0012001000004		OCT	1200100004,200000000000	
07425	+2000000000000				
07426	+0000000000010		OCT	10	
07427	+2010001200004		OCT	201000120004	
07430	-000163614120		OCT	-400163614120	
07431	+100204002653	P92	OCT	100204002653	
07432	-000020000220		OCT	-400020000220,400040000	
07433	+0004000400000				
07434	+0000000000000		OCT	0,140001400	
07435	+0001400014000				
07436	+2000000000010		OCT	200000000010,10000102	
07437	+000010000102				
07440	+1004000400000		OCT	100400040000,0,4	
07441	+0000000000000				
07442	+0000000000004				
07443	+000500041000	P93	OCT	500041000	
07444	-000060000620		OCT	-400060000620	
07445	+300010000116	P95	OCT	300010000116	
07446	0000 30 0 07447	CTWD	HTR	PR,0,24	CONTROL WORD FOR PRINTING
07447	+0000000000000	PR	OCT		PRINT IMAGE

07450 BSS 23  
07477 ORG PR+24  
07477 0A HED  
07477 +000000000000 OCTTH OCT 0  
07500 +000000000000 CBIT OCT 0  
07501 OCTAD BSS 19

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\* IMAGE --

\*\* 00000 START KEY RESET-SECTION 1 COMPLETE

07524	+000004020010	SECN1	OCT 000004020010	9	ROW LEFT
07525	+000000000000		OCT 000000000000	9	ROW RIGHT
07526	-000000100000		OCT 400000100000	8	L
07527	+000000000000		OCT 000000000000	8	R
07530	+000000000000		OCT 000000000000	7	L
07531	+010000000000		OCT 010000000000	7	R
07532	+000000000004		OCT 000000000004	6	L
07533	+040000000000		OCT 040000000000	6	R
07534	+000000212102		OCT 000000212102	5	L
07535	+002400000000		OCT 002400000000	5	R
07536	-000000000000		OCT 400000000000	4	L
07537	+020000000000		OCT 020000000000	4	R
07540	+000022001060		OCT 000022001060	3	L
07541	+105000000000		OCT 105000000000	3	R
07542	+000040404200		OCT 000040404200	2	L
07543	+000000000000		OCT 000000000000	2	R
07544	+000010000000		OCT 000010000000	1	L
07545	-000000000000		OCT 400000000000	1	R
07546	+000062105220		OCT 000062105220	0	L
07547	+001000000000		OCT 001000000000	0	R
07550	-000004420006		OCT 400004420006	11	L
07551	+074000000000		OCT 074000000000	11	R
07552	+000010212150		OCT 000010212150	12	L
07553	+102400000000		OCT 102400000000	12	R

\* IMAGE --

\*\* 00000 INITAL 755 AND 766-SECTION 2 COMPLETE

07554	+000052000000	SECN2	OCT 000052000000	9	ROW LEFT
07555	-000000000000		OCT 400000000000	9	ROW RIGHT
07556	-000000000000		OCT 400000000000	8	L
07557	+000000000000		OCT 000000000000	8	R
07560	+000000100200		OCT 000000100200	7	L
07561	+000400000000		OCT 000400000000	7	R
07562	+000000000140		OCT 000000000140	6	L
07563	+202000000000		OCT 202000000000	6	R
07564	+000020062004		OCT 000020062004	5	L
07565	+100120000000		OCT 100120000000	5	R
07566	-000000001000		OCT 400000001000	4	L
07567	+001000000000		OCT 001000000000	4	R
07570	+000004400003		OCT 000004400003	3	L
07571	+004240000000		OCT 004240000000	3	R
07572	+000000000010		OCT 000000000010	2	L
07573	+020000000000		OCT 020000000000	2	R
07574	+000001004000		OCT 000001004000	1	L
07575	+000000000000		OCT 000000000000	1	R
07576	+000004000011		OCT 000004000011	0L	
07577	+000040000000		OCT 000040000000	0	R
07600	-000020402020		OCT 400020402020	11	L
07601	+303600000000		OCT 303600000000	11	R
07602	+000053005006		OCT 000053005006	12	L
07603	-004120000000		OCT 404120000000	12	R

\* IMAGE --

\*\* 00000 INITIAL CARD MACHINES-SECTION 3 COMPLETE

07604	+000052020100	SECN3	OCT 000052020100	9	ROW LEFT
07605	+100000000000		OCT 100000000000	9	ROW RIGHT
07606	-000000000200		OCT 400000000200	8	L
07607	+000000000000		OCT 000000000000	8	R
07610	+000000000000		OCT 000000000000	7	L
07611	+000100000000		OCT 000100000000	7	R
07612	+000000000000		OCT 000000000000	6	L
07613	+040400000000		OCT 040400000000	6	R
07614	+000020000061		OCT 000020000061	5	L
07615	+020024000000		OCT 020024000000	5	R
07616	-000000012000		OCT 400000012000	4	L
07617	+000200000000		OCT 000200000000	4	R
07620	+000004500400		OCT 000004500400	3	L
07621	-205050000000		OCT 605050000000	3	R
07622	+000000000012		OCT 000000000012	2	L
07623	+000000000000		OCT 000000000000	2	R
07624	+000001041000		OCT 000001041000	1	L
07625	+000000000000		OCT 000000000000	1	R
07626	+000004000012		OCT 000040000012	0L	
07627	+200010000000		OCT 200010000000	0	R
07630	-000020422044		OCT 400020422044	11	L
07631	+060740000000		OCT 060740000000	11	R
07632	+000053151721		OCT 000053151721	12	L
07633	-101024000000		OCT 501024000000	12	R

\* IMAGE --



\*\* 00000 ALL DRUMS TESTED-SECTION 4 COMPLETE

07634	+000001000004	SECN4	OCT 000001000004	9 ROW LEFT
07635	+000000000000		OCT 000000000000	9 ROW RIGHT
07636	-000000000000		OCT 400000000000	8 L
07637	+000000000000		OCT 000000000000	8 R
07640	+000000000000		OCT 000000000000	7 L
07641	+004000000000		OCT 004000000000	7 R
07642	+000000000002		OCT 000000000002	6 L
07643	+020000000000		OCT 020000000000	6 R
07644	+000000011041		OCT 000000011041	5 L
07645	+001200000000		OCT 001200000000	5 R
07646	-000002600400		OCT 400002600400	4 L
07647	+210000000000		OCT 210000000000	4 R
07650	+000030022030		OCT 000030022030	3 L
07651	+042400000000		OCT 042400000000	3 R
07652	+000000104100		OCT 000000104100	2 L
07653	+000000000000		OCT 000000000000	2 R
07654	+000040000000		OCT 000040000000	1 L
07655	+000000000000		OCT 000000000000	1 R
07656	+000000526110		OCT 000000526110	0L
07657	+000400000000		OCT 000400000000	0 R
07660	-000031200203		OCT 400031200203	11 L
07661	+036000000000		OCT 036000000000	11 R
07662	+000042011464		OCT 000042011464	12 L
07663	+041200000000		OCT 041200000000	12 R

\* IMAGE --

\*\* 00000 DRUM AND I/O SELECTION INTERLOCK-SECTION 5 COMPLETE

07664	+000020040021	SECN5	OCT 000020040021	9 ROW LEFT
07665	+040020000000		OCT 040020000000	9 ROW RIGHT
07666	-000000000000		OCT 400000000000	8 L
07667	+000000000000		OCT 000000000000	8 R
07670	+000000000000		OCT 000000000000	7 L
07671	+000000020000		OCT 000000020000	7 R
07672	+000000010010		OCT 000000010010	6 L
07673	+010010100000		OCT 010010100000	6 R
07674	+000000401204		OCT 000000401204	5 L
07675	-100205005000		OCT 500205005000	5 R
07676	-000054200000		OCT 400054200000	4 L
07677	+000000040000		OCT 000000040000	4 R
07700	+000000000540		OCT 000000000540	3 L
07701	+224140212000		OCT 224140212000	3 R
07702	+000000002000		OCT 000000002000	2 L
07703	+002400000000		OCT 002400000000	2 R
07704	+000001020000		OCT 000001020000	1 L
07705	+000000000000		OCT 000000000000	1 R
07706	+000010022040		OCT 000010022040	0L
07707	+200440002000		OCT 200440002000	0 R
07710	-000024410414		OCT 400024410414	11 L
07711	-073014170000		OCT 473014170000	11 R
07712	+000041241321		OCT 000041241321	12 L
07713	+104320205000		OCT 104320205000	12 R

\* IMAGE --

\*\* 00000 CRT-ALL DISPLAYS-SECTION 6 COMPLETE

07714	+000020040004	SECN6	OCT 000020040004	9 ROW LEFT
07715	+000000000000		OCT 000000000000	9 ROW RIGHT
07716	-000000001000		OCT 400000001000	8 L
07717	+000000000000		OCT 000000000000	8 R
07720	+000000010000		OCT 000000010000	7 L
07721	+004000000000		OCT 004000000000	7 R
07722	+000000000002		OCT 000000000002	6 L
07723	+220000000000		OCT 220000000000	6 R
07724	+000000000041		OCT 000000000041	5 L
07725	+001200000000		OCT 001200000000	5 R
07726	-000000100000		OCT 400000100000	4 L
07727	+010000000000		OCT 010000000000	4 R
07730	+000051404030		OCT 000051404030	3 L
07731	+042400000000		OCT 042400000000	3 R
07732	+000000020500		OCT 000000020500	2 L
07733	+000000000000		OCT 000000000000	2 R
07734	+000002002000		OCT 000002002000	1 L
07735	+000000000000		OCT 000000000000	1 R
07736	+000010021510		OCT 000010021510	0L
07737	+000400000000		OCT 000400000000	0 R
07740	-000025414203		OCT 400025414203	11 L
07741	+036000000000		OCT 036000000000	11 R
07742	+000042142064		OCT 000042142064	12 L
07743	+041200000000		OCT 041200000000	12 R

\* IMAGE --

\*\* 00000 WRITE TAPE AND WRITE PRINTER-SECTION 7 COMPLETE

07744	+000030000303	SECN7	OCT 000030000303	9 ROW LEFT
07745	+040400000000		OCT 040400000000	9 ROW RIGHT
07746	-000000000000		OCT 400000000000	8 L
07747	+000000000000		OCT 000000000000	8 R
07750	+000000100004		OCT 000000100004	7 L
07751	+000020400000		OCT 000020400000	7 R
07752	+000040000400		OCT 000040000400	6 L
07753	+000202000000		OCT 000202000000	6 R
07754	+000002044020		OCT 000002044020	5 L
07755	-104100120000		OCT 504100120000	5 R
07756	-000000002000		OCT 400000002000	4 L
07757	+000001000000		OCT 000001000000	4 R
07760	+000004400040		OCT 000004400040	3 L
07761	+203004240000		OCT 203004240000	3 R
07762	+000000000000		OCT 000000000000	2 L
07763	+010000000000		OCT 010000000000	2 R
07764	+000000210000		OCT 000000210000	1 L
07765	+000000000000		OCT 000000000000	1 R
07766	+000044400440		OCT 000044400440	0L
07767	+211000040000		OCT 211000040000	0 R
07770	-000020104206		OCT 400020104206	11 L
07771	-060303600000		OCT 460303600000	11 R
07772	+000012252121		OCT 000012252121	12 L
07773	+106404120000		OCT 106404120000	12 R

\* IMAGE --

\*\* 00000 READ TAPE AND READ PRINTER-SECTION 8 COMPLETE

07774	+000040001014	SECN8	OCT 000040001014	9 ROW LEFT
07775	+202000000000		OCT 202000000000	9 ROW RIGHT
07776	-000000000000		OCT 400000000000	8 L
07777	+000100000000		OCT 000100000000	8 R
10000	+000000200020		OCT 000000200020	7 L
10001	+000002000000		OCT 000002000000	7 R
10002	+000000000000		OCT 000000000000	6 L
10003	+001010000000		OCT 001010000000	6 R
10004	+000020110402		OCT 000020110402	5 L
10005	-020400500000		OCT 420400500000	5 R
10006	-000004004100		OCT 400004004100	4 L
10007	+000004000000		OCT 000004000000	4 R
10010	+000001000001		OCT 000001000001	3 L
10011	+014021200000		OCT 014021200000	3 R
10012	+000000000000		OCT 000000000000	2 L
10013	+040000000000		OCT 040000000000	2 R
10014	+000010420200		OCT 000010420200	1 L
10015	+000000000000		OCT 000000000000	1 R
10016	+000001000001		OCT 000010000001	0L
10017	+044000200000		OCT 044000200000	0 R
10020	-000040211032		OCT 400040211032	11 L
10021	+301417000000		OCT 301417000000	11 R
10022	+000034524704		OCT 000034524704	12 L
10023	-032020500000		OCT 432020500000	12 R

\* IMAGE --

\*\* 00000 WRITE TAPE ALL CHANNELS-SECTION 9 COMPLETE

10024	+000030000000	SECN9	OCT 000030000000	9 ROW LEFT
10025	+021000000000		OCT 021000000000	9 ROW RIGHT
10026	-000000000200		OCT 400000000200	8 L
10027	+000000000000		OCT 000000000000	8 R
10030	+000000100000		OCT 000000100000	7 L
10031	+000020000000		OCT 000020000000	7 R
10032	+000040000000		OCT 000040000000	6 L
10033	+010100000000		OCT 010100000000	6 R
10034	+000002040070		OCT 000002040070	5 L
10035	+204005000000		OCT 204005000000	5 R
10036	-000000000000		OCT 400000000000	4 L
10037	+000040000000		OCT 000040000000	4 R
10040	+000004406404		OCT 000004406404	3 L
10041	+140212000000		OCT 140212000000	3 R
10042	+000000000002		OCT 000000000002	2 L
10043	-000000000000		OCT 400000000000	2 R
10044	+000000210100		OCT 000000210100	1 L
10045	+000000000000		OCT 000000000000	1 R
10046	+000044400002		OCT 000044400002	0L
10047	-040002000000		OCT 440002000000	0 R
10050	-000020106065		OCT 400020106065	11 L
10051	+014170000000		OCT 014170000000	11 R
10052	+000012250710		OCT 000012250710	12 L
10053	+320205000000		OCT 320205000000	12 R

\* IMAGE --

\*\* 00000 READ TAPE AND READ PUNCH-SECTION 10 COMPLETE

10054	+000040000600	SEC10	OCT 000040000600	9 ROW LEFT
10055	+004000000000		OCT 004000000000	9 ROW RIGHT
10056	-000000000000		OCT 400000000000	8 L
10057	-000000000000		OCT 400000000000	8 R
10060	+000000200010		OCT 000000200010	7 L
10061	+000002000000		OCT 000002000000	7 R
10062	+000000001000		OCT 000000001000	6 L
10063	+002010000000		OCT 002010000000	6 R
10064	+000020110042		OCT 000020110042	5 L
10065	+041000500000		OCT 041000500000	5 R
10066	-000004004004		OCT 400004004004	4 L
10067	+000004000000		OCT 000004000000	4 R
10070	+000001000101		OCT 000001000101	3 L
10071	+030021200000		OCT 030021200000	3 R
10072	+000000000000		OCT 000000000000	2 L
10073	+100000000000		OCT 100000000000	2 R
10074	+000010420000		OCT 000010420000	1 L
10075	+000200000000		OCT 000200000000	1 R
10076	+000001001104		OCT 000001001104	0L
10077	+110100200000		OCT 110100200000	0 R
10100	-000040210412		OCT 400040210412	11 L
10101	+203017000000		OCT 203017000000	11 R
10102	+000034524241		OCT 000034524241	12 L
10103	-064020500000		OCT 464020500000	12 R

\* IMAGE --

\*\* 00000 WRITE TAPE AND READ TAPE-SECTION 11 COMPLETE

10104	+000030000400	SEC11	OCT 000030000400	9 ROW LEFT
10105	+010000000000		OCT 010000000000	9 ROW RIGHT
10106	-000000000000		OCT 400000000000	8 L
10107	+000000000000		OCT 000000000000	8 R
10110	+000000100002		OCT 000000100002	7 L
10111	+000004000000		OCT 000004000000	7 R
10112	+000040000000		OCT 000040000000	6 L
10113	+004020000000		OCT 004020000000	6 R
10114	+000002044201		OCT 000002044201	5 L
10115	+102001200000		OCT 102001200000	5 R
10116	-000000002040		OCT 400000002040	4 L
10117	+000010000000		OCT 000010000000	4 R
10120	+000004400010		OCT 000004400010	3 L
10121	+060042400000		OCT 060042400000	3 R
10122	+000000000000		OCT 000000000000	2 L
10123	+200000000000		OCT 200000000000	2 R
10124	+000000210104		OCT 000000210104	1 L
10125	+000600000000		OCT 000600000000	1 R
10126	+000044400010		OCT 000044400010	0L
10127	+220000400000		OCT 220000400000	0 R
10130	-000020104402		OCT 400020104402	11 L
10131	-006036000000		OCT 406036000000	11 R
10132	+000012252345		OCT 000012252345	12 L
10133	+150041200000		OCT 150041200000	12 R

\* IMAGE --

\*\* 00000 READ TAPE AND WRITE PRINTER-SECTION 12 COMPLETE

10134	+000040000606	SEC12	OCT 000040000606	9	ROW LEFT
10135	+101000000000		OCT 101000000000	9	ROW RIGHT
10136	-000000000000		OCT 400000000000	8	L
10137	+000000000000		OCT 000000000000	8	R
10140	+000000200010		OCT 000000200010	7	L
10141	+000000400000		OCT 000000400000	7	R
10142	+000000001000		OCT 000000001000	6	L
10143	+000402000000		OCT 000402000000	6	R
10144	+000020110041		OCT 000020110041	5	L
10145	+210200120000		OCT 210200120000	5	R
10146	-000004004000		OCT 400004004000	4	L
10147	+000001000000		OCT 000001000000	4	R
10150	+000001000100		OCT 000001000100	3	L
10151	-006004240000		OCT 406004240000	3	R
10152	+000000000000		OCT 000000000000	2	L
10153	+020020000000		OCT 020020000000	2	R
10154	+000010420000		OCT 000010420000	1	L
10155	+000040000000		OCT 000040000000	1	R
10156	+000001001100		OCT 000001001100	0L	
10157	-022000040000		OCT 422000040000	0	R
10160	-000040210415		OCT 400040210415	11	L
10161	+140603600000		OCT 140603600000	11	R
10162	+000034524242		OCT 000034524242	12	L
10163	+215004120000		OCT 215004120000	12	R

\* IMAGE --

\*\* 00000 WRITE TAPE AND WRITE PUNCH-SECTION 13 COMPLETE

10164	+000030000300	SEC13	OCT 000030000300	9	ROW LEFT
10165	+002000000000		OCT 002000000000	9	ROW RIGHT
10166	-000000000000		OCT 400000000000	8	L
10167	+200000000000		OCT 200000000000	8	R
10170	+000000100004		OCT 000000100004	7	L
10171	+000001000000		OCT 000001000000	7	R
10172	+000040000400		OCT 000040000400	6	L
10173	+001004000000		OCT 001004000000	6	R
10174	+000002044021		OCT 000002044021	5	L
10175	+020400240000		OCT 020400240000	5	R
10176	-000000002002		OCT 400000002002	4	L
10177	+000002000000		OCT 000002000000	4	R
10200	+000004400040		OCT 000004400040	3	L
10201	-014050500000		OCT 414050500000	3	R
10202	+000000000000		OCT 000000000000	2	L
10203	+040000000000		OCT 040000000000	2	R
10204	+000000210000		OCT 000000210000	1	L
10205	+000100000000		OCT 000100000000	1	R
10206	+000044400442		OCT 000044400442	0L	
10207	+044000100000		OCT 044000100000	0	R
10210	-000020104205		OCT 400020104205	11	L
10211	+101407400000		OCT 101407400000	11	R
10212	+000012252120		OCT 000012252120	12	L
10213	-232010240000		OCT 632010240000	12	R

\* IMAGE --

\*\* 00000 WRITE TAPE AND READ PRINTER-SECTION 14 COMPLETE

10214	+000030000406	SEC14	OCT 000030000406	9	ROW LEFT
10215	+101000000000		OCT 101000000000	9	ROW RIGHT
10216	-000000000000		OCT 400000000000	8	L
10217	+000000000000		OCT 000000000000	8	R
10220	+000000100010		OCT 000000100010	7	L
10221	+000000400000		OCT 000000400000	7	R
10222	+000040000000		OCT 000040000000	6	L
10223	+000402000000		OCT 000402000000	6	R
10224	+000002044201		OCT 000002044201	5	L
10225	+210200120000		OCT 210200120000	5	R
10226	-000000002040		OCT 400000002040	4	L
10227	+000021000000		OCT 000021000000	4	R
10230	+000004400000		OCT 000004400000	3	L
10231	-006004240000		OCT 406004240000	3	R
10232	+000000000000		OCT 000000000000	2	L
10233	+020000000000		OCT 020000000000	2	R
10234	+000000210100		OCT 000000210100	1	L
10235	+000040000000		OCT 000040000000	1	R
10236	+000044400000		OCT 000044400000	0L	
10237	-022000040000		OCT 422000040000	0	R
10240	-000020104415		OCT 400020104415	11	L
10241	+140603600000		OCT 140603600000	11	R
10242	+000012252342		OCT 000012252342	12	L
10243	+215004120000		OCT 215004120000	12	R

\* IMAGE --

\*\* 00000 WRITE PR BINARY AND READ TAPE-IND 19-SECTION 15 COMPLETE

10244	+000030222010	SEC15	OCT 000030222010	9	ROW LEFT
10245	+004101000000		OCT 004101000000	9	ROW RIGHT
10246	-000000001000		OCT 400000001000	8	L
10247	+000000000000		OCT 000000000000	8	R
10250	+000000400000		OCT 000000400000	7	L
10251	+040000000400		OCT 040000000400	7	R
10252	+000040000000		OCT 000040000000	6	L
10253	+000000402000		OCT 000000402000	6	R
10254	+000002010104		OCT 000002010104	5	L
10255	+022010220120		OCT 022010220120	5	R
10256	-000000000041		OCT 400000000041	4	L
10257	+001000001000		OCT 001000001000	4	R
10260	+000004000000		OCT 000004000000	3	L
10261	+200006004240		OCT 200006004240	3	R
10262	+000000040000		OCT 000000040000	2	L
10263	+000020000000		OCT 000020000000	2	R
10264	+000000004202		OCT 000000004202	1	L
10265	+100200040000		OCT 100200040000	1	R
10266	+000044001000		OCT 000044001000	0L	
10267	+200022000040		OCT 200022000040	0	R
10270	-000020612110		OCT 400020612110	11	L
10271	+052040603600		OCT 052040603600	11	R
10272	+000012064247		OCT 000012064247	12	L
10273	+125015004120		OCT 125015004120	12	R

\* IMAGE --

\*\* 00000 READ TAPE CONCURRENTLY-SECTION 16 COMPLETE

10274	+000040000600	SEC16	OCT 000040000600	9	ROW LEFT
10275	+040000000000		OCT 040000000000	9	ROW RIGHT
10276	-000000000004		OCT 400000000004	8	L
10277	+000000000000		OCT 000000000000	8	R
10300	+000000200000		OCT 000000200000	7	L
10301	+000020000000		OCT 000020000000	7	R
10302	+000000010000		OCT 000000010000	6	L
10303	+021100000000		OCT 021100000000	6	R
10304	+000020104140		OCT 000020104140	5	L
10305	-010005000000		OCT 410005000000	5	R
10306	-000004001000		OCT 400004001000	4	L
10307	+000040000000		OCT 000040000000	4	R
10310	+000001022030		OCT 000001022030	3	L
10311	+300212000000		OCT 300212000000	3	R
10312	+000000000001		OCT 000000000001	2	L
10313	+000000000000		OCT 000000000000	2	R
10314	+000010400000		OCT 000010400000	1	L
10315	+002000000000		OCT 002000000000	1	R
10316	+000001001025		OCT 000001001025	0L	
10317	+100002000000		OCT 100002000000	0	R
10320	-000040214652		OCT 400040214652	11	L
10321	+030170000000		OCT 030170000000	11	R
10322	+000034522100		OCT 000034522100	12	L
10323	-240205000000		OCT 640205000000	12	R

\* IMAGE --

\*\* 00000 READ CARDS AND WRITE TAPE-SECTION 17 COMPLETE

10324	+000040200300	SEC17	OCT 000040200300	9	ROW LEFT
10325	+004000000000		OCT 004000000000	9	ROW RIGHT
10326	-000000000000		OCT 400000000000	8	L
10327	+000000000000		OCT 000000000000	8	R
10330	+000000000001		OCT 000000000001	7	L
10331	+000102000000		OCT 000102000000	7	R
10332	+000000000400		OCT 000000000400	6	L
10333	+002010000000		OCT 002010000000	6	R
10334	+000020004020		OCT 000020004020	5	L
10335	-041000500000		OCT 441000500000	5	R
10336	-000004102000		OCT 400004102000	4	L
10337	+000004000000		OCT 000004000000	4	R
10340	+000001000044		OCT 000001000044	3	L
10341	+030021200000		OCT 030021200000	3	R
10342	+000000040000		OCT 000000040000	2	L
10343	+100000000000		OCT 100000000000	2	R
10344	+000010410002		OCT 000010410002	1	L
10345	+000200000000		OCT 000200000000	1	R
10346	+000000040444		OCT 000000040444	0L	
10347	+110000200000		OCT 110000200000	0	R
10350	-000040204201		OCT 400040204201	11	L
10351	+203017000000		OCT 203017000000	11	R
10352	+000035512122		OCT 000035512122	12	L
10353	-064020500000		OCT 464020500000	12	R

\* IMAGE --

\*\* 00000 READ TAPE AND READ CARDS-SECTION 18 COMPLETE

10354	+000040001004	SEC18	OCT 000040001004	9 ROW LEFT
10355	+010000000000		OCT 010000000000	9 ROW RIGHT
10356	-000000000000		OCT 400000000000	8 L
10357	+000200000000		OCT 000200000000	8 R
10360	+000000200000		OCT 000000200000	7 L
10361	+000004000000		OCT 000004000000	7 R
10362	+000000000000		OCT 000000000000	6 L
10363	+004020000000		OCT 004020000000	6 R
10364	+000020110400		OCT 000020110400	5 L
10365	+102001200000		OCT 102001200000	5 R
10366	-000004004102		OCT 400004004102	4 L
10367	+000010000000		OCT 000010000000	4 R
10370	+000001000020		OCT 000001000020	3 L
10371	+060042400000		OCT 060042400000	3 R
10372	+000000000001		OCT 000000000001	2 L
10373	+200000000000		OCT 200000000000	2 R
10374	+000010420210		OCT 000010420210	1 L
10375	+000400000000		OCT 000400000000	1 R
10376	+000001000001		OCT 000001000001	0L
10377	+220000400000		OCT 220000400000	0 R
10400	-000040211004		OCT 400040211004	11 L
10401	-006036000000		OCT 406036000000	11 R
10402	+000034524732		OCT 000034524732	12 L
10403	+150041200000		OCT 150041200000	12 R

\* IMAGE --

\*\* 00000 READ CARDS AND WRITE TAPE-SECTION 19 COMPLETE

10404	+000040200300	SEC19	OCT 000040200300	9 ROW LEFT
10405	+004100000000		OCT 004100000000	9 ROW RIGHT
10406	-000000000000		OCT 400000000000	8 L
10407	+000000000000		OCT 000000000000	8 R
10410	+000000000001		OCT 000000000001	7 L
10411	+000002000000		OCT 000002000000	7 R
10412	+000000000400		OCT 000000000400	6 L
10413	+002010000000		OCT 002010000000	6 R
10414	+000020004020		OCT 000020004020	5 L
10415	-041000500000		OCT 441000500000	5 R
10416	-000004102000		OCT 400004102000	4 L
10417	+000004000000		OCT 000004000000	4 R
10420	+000001000044		OCT 000001000044	3 L
10421	+030021200000		OCT 030021200000	3 R
10422	+000000040000		OCT 000000040000	2 L
10423	+100000000000		OCT 100000000000	2 R
10424	+000010410002		OCT 000010410002	1 L
10425	+000200000000		OCT 000200000000	1 R
10426	+000000040444		OCT 000000040444	0L
10427	+110000200000		OCT 110000200000	0 R
10430	-000040204201		OCT 400040204201	11 L
10431	+203017000000		OCT 203017000000	11 R
10432	+000035512122		OCT 000035512122	12 L
10433	-064020500000		OCT 464020500000	12 R
10434	+000000000000	END	OCT 0	9L



10435	+200000000000	OCT	200000000000	9R
10436	+000000000000	OCT	0	8L
10437	+040201000000	OCT	40201000000	8R
10440	+000000040100	OCT	40100	7L
10441	+000000000000	OCT	0	7R
10442	+000000000400	OCT	400	6L
10443	+000000000000	OCT	0	6R
10444	+000000000024	OCT	24	5L
10445	+000020400000	OCT	20400000	5R
10446	+000000000200	OCT	200	4L
10447	+000010000000	OCT	10000000	4R
10450	+000000001050	OCT	1050	3L
10451	+000042200000	OCT	42200000	3R
10452	+000000014000	OCT	14000	2L
10453	+100500100000	OCT	100500100000	2R
10454	+000000020000	OCT	20000	1L
10455	+030000000000	OCT	30000000000	1R
10456	+000000014010	OCT	14010	0L
10457	+140740000000	OCT	140740000000	0R
10460	+000000040741	OCT	40741	11L
10461	+002010100000	OCT	2010100000	11R
10462	+000000021024	OCT	21024	12L
10463	+010023600000	OCT	10023600000	12R

10464	-0000	22	0	71465	SHOOK	IOCP	WRIT2,0,18	WRITE	9L-1R
10465	-0000	02	0	72013		IOCP	E84,0,2	8-4L-8-4R	ECHO
10466	-0000	02	0	71507		IOCP	WRIT2+18,0,2	WRITE	0R-0L
10467	-0000	02	0	72011		IOCP	E83,0,2	8-3L-8-3R	ECHO
10470	-0000	02	0	71511		IOCP	WRIT2+20,0,2	WRITE	11L-11R
10471	-0000	02	0	71767		IOCP	ECHO,0,2	9L-9R	ECHO
10472	-0000	02	0	71513		IOCP	WRIT2+22,0,2	WRITE	12L-12R
10473	-0000	02	0	71771		IOCP	ECHO+2,0,2	8L-8R	ECHO
10474	0000	16	0	71773		IOCD	ECHO+4,0,14	7L-1R	ECHO

10475	-0500	00	0	71771	ECHOS	CAL	ECHO+2	8L
10476	0361	00	0	72011		ACL	E83	8-3L
10477	0361	00	0	72013		ACL	E84	8-4L
10500	0602	00	0	71771		SLW	ECHO+2	8L

10501	-0500	00	0	71772		CAL	ECHO+3	8R
10502	0361	00	0	72012		ACL	E83+1	8-3R
10503	0361	00	0	72014		ACL	E84-+1	8-4R
10504	0602	00	0	71772		SLW	ECHO+3	8R

10505	-0500	00	0	72003		CAL	ECHO+12	3L
10506	0361	00	0	72011		ACL	E83	8-3L
10507	0602	00	0	72003		SLW	ECHO+12	3L

10510	-0500	00	0	72004		CAL	ECHO+13	3R
10511	0361	00	0	72012		ACL	E83+1	8-3R
10512	0602	00	0	72004		SLW	ECHO+13	3R

10513	-0500	00	0	72001		CAL	ECHO+10	4L
10514	0361	00	0	72013		ACL	E84	8-4L
10515	0602	00	0	72001		SLW	ECHO+10	4L

10516	-0500	00	0	72002		CAL	ECHO+11	4R
10517	0361	00	0	72014		ACL	E84+1	8-4R
10520	0602	00	0	72002		SLW	ECHO+11	4R
10521	0020	00	2	00001		TRA	1,2	EXIT
10522	-0500	00	0	73122	ECHCS	CAL	ECHOC+2	8L
10523	0361	00	0	73142		ACL	EC83	8-3L
10524	0361	00	0	73144		ACL	EC84	8-4L
10525	0602	00	0	73122		SLW	ECHOC+2	8L
10526	-0500	00	0	73123		CAL	ECHOC+3	8R
10527	0361	00	0	73143		ACL	EC83+1	8-3R
10530	0361	00	0	73145		ACL	EC84+1	8-4R
10531	0602	00	0	73123		SLW	ECHOC+3	8R
10532	-0500	00	0	73134		CAL	ECHOC+12	3L
10533	0361	00	0	73142		ACL	EC83	8-3L
10534	0602	00	0	73134		SLW	ECHOC+12	3L
10535	-0500	00	0	73135		CAL	ECHOC+13	3R
10536	0361	00	0	73143		ACL	EC83+1	8-3R
10537	0602	00	0	73135		SLW	ECHOC+13	3R
10540	-0500	00	0	73132		CAL	ECHOC+10	4L
10541	0361	00	0	73144		ACL	EC84	8-4L
10542	0602	00	0	73132		SLW	ECHOC+10	4L
10543	-0500	00	0	73133		CAL	ECHOC+11	4R
10544	0361	00	0	73145		ACL	EC84+1	8-4R
10545	0602	00	0	73133		SLW	ECHOC+11	4R
10546	0020	00	2	00001		TRA	1,2	EXIT
10547	-0500	00	0	73150	ECHES	CAL	ECHOE+2	8L
10550	0361	00	0	73170		ACL	EE83	8-3L
10551	0361	00	0	73172		ACL	EE84	8-4L
10552	0602	00	0	73150		SLW	ECHOE+2	8L
10553	-0500	00	0	73151		CAL	ECHOE+3	8R
10554	0361	00	0	73171		ACL	EE83+1	8-3R
10555	0361	00	0	73173		ACL	EE84+1	8-4R
10556	0602	00	0	73151		SLW	ECHOE+3	8R
10557	-0500	00	0	73162		CAL	ECHOE+12	3L
10560	0361	00	0	73170		ACL	EE83	8-3L
10561	0602	00	0	73162		SLW	ECHOE+12	3L
10562	-0500	00	0	73163		CAL	ECHOE+13	3R
10563	0361	00	0	73171		ACL	EE83+1	8-3R
10564	0602	00	0	73163		SLW	ECHOE+13	3R
10565	-0500	00	0	73160		CAL	ECHOE+10	4L
10566	0361	00	0	73172		ACL	EE84	8-4L
10567	0602	00	0	73160		SLW	ECHOE+10	4L

10570	-0500	00	0	73161	CAL	ECHOE+11	4R
10571	0361	00	0	73173	ACL	EE84+1	8-4R
10572	0602	00	0	73161	SLW	ECHOE+11	4R
10573	0020	00	2	00001	TRA	1,2	EXIT

10574	516322216060	BCDTA	BCD	1RTBA
10575	0766 00 0 01220		WTBA	
10576	516322226060	BCDTB	BCD	1RTBB
10577	0766 00 0 02220		WTBB	
10600	516322236060	BCDTC	BCD	1RTBC
10601	0766 00 0 03220		WTBC	
10602	516322246060	BCDTD	BCD	1RTBD
10603	0766 00 0 04220		WTBD	
10604	516322256060	BCDTE	BCD	1RTBE
10605	0766 00 0 05220		WTBE	
10606	516322266060	BCDTF	BCD	1RTBF
10607	0766 00 0 06220		WTBF	
10610	666322246060	BCDD	BCD	1WTBD
10611	0766 00 0 04220		WTBD	
10612	666322266060	BCDF	BCD	1WTBF
10613	0766 00 0 06220		WTBF	
10614	-1 00003 0 00000	OMY	MON	0,0,3

	71316		ORG	32767-3377
71316	0020 00 0 01630	BCD1	TRA	YALE-4
71317	0020 00 0 01674	BCD2	TRA	C
71320	+0000000000000	SAVE	OCT	0
71321	+0000000000000	SAVE1	OCT	0
71322	+0000000000000	SAVE2	OCT	0
71323	-0051 00 000000	IIL	IIL	
71324	+0000077777777	ADDR	OCT	7777777
71325	0051 00 000000	IIR	IIR	
71326	+0000220000000	CO22	OCT	22000000
71327	+0000000000001	BIT35	OCT	1
71330	+007777004673	DELAY	OCT	7777004673 CONSTANT FOR DELAY
71331	+01010101010101	FIX	OCT	010101010101
71332	+02020202020202		OCT	020202020202
71333	+03030303030303		OCT	030303030303
71334	+04040404040404		OCT	040404040404
71335	+05050505050505		OCT	050505050505
71336	+06060606060606		OCT	060606060606
71337	+07070707070707		OCT	070707070707
71340	+10101010101010		OCT	101010101010
71341	+11111111111111		OCT	111111111111
71342	+12121212121212		OCT	121212121212
71343	+13131313131313		OCT	131313131313
71344	+14141414141414		OCT	141414141414
71345	+15151515151515		OCT	151515151515
71346	+16161616161616		OCT	161616161616
71347	+17171717171717		OCT	171717171717
71350	+20202020202020		OCT	202020202020
71351	+21212121212121		OCT	212121212121
71352	+22222222222222		OCT	222222222222
71353	+23232323232323		OCT	232323232323
71354	+24242424242424		OCT	242424242424
71355	+25252525252525		OCT	252525252525
71356	+26262626262626		OCT	262626262626
71357	+27272727272727		OCT	272727272727
71360	+30303030303030		OCT	303030303030
71361	+31313131313131		OCT	313131313131
71362	+32323232323232		OCT	323232323232
71363	+33333333333333		OCT	333333333333
71364	+34343434343434		OCT	343434343434
71365	+35353535353535		OCT	353535353535
71366	+36363636363636		OCT	363636363636
71367	+37373737373737		OCT	373737373737
71370	-00404040404040		OCT	404040404040
71371	-01414141414141		OCT	414141414141
71372	-02424242424242		OCT	424242424242
71373	-03434343434343		OCT	434343434343
71374	-04444444444444		OCT	444444444444
71375	-05454545454545		OCT	454545454545
71376	-06464646464646		OCT	464646464646
71377	-07474747474747		OCT	474747474747
71400	-10505050505050		OCT	505050505050
71401	-11515151515151		OCT	515151515151
71402	-12525252525252		OCT	525252525252
71403	-13535353535353		OCT	535353535353
71404	-14545454545454		OCT	545454545454

71405 -15555555555555555555 OCT 5555555555555555  
71406 -16565656565656565656 OCT 5656565656565656  
71407 -17575757575757575757 OCT 5757575757575757  
71410 -20606060606060606060 OCT 6060606060606060  
71411 -21616161616161616161 OCT 6161616161616161  
71412 -22626262626262626262 OCT 6262626262626262  
71413 -23636363636363636363 OCT 6363636363636363  
71414 -24646464646464646464 OCT 6464646464646464  
71415 -25656565656565656565 OCT 6565656565656565  
71416 -26666666666666666666 OCT 6666666666666666  
71417 -27676767676767676767 OCT 6767676767676767  
71420 -30707070707070707070 OCT 7070707070707070  
71421 -31717171717171717171 OCT 7171717171717171  
71422 -32727272727272727272 OCT 7272727272727272  
71423 -33737373737373737373 OCT 7373737373737373  
71424 -34747474747474747474 OCT 7474747474747474  
71425 -35757575757575757575 OCT 7575757575757575  
71426 -36767676767676767676 OCT 7676767676767676  
71427 -37777777777777777777 OCT 7777777777777777  
71430 +01010101010101010101 OCT 0101010101010101

71431 0500 00 0 71436 CTAPE CLA TPSEL CHANNEL A, UNIT 1, SELECT  
71432 0601 00 0 04176 STO EFP+5 CHANGE CARD  
71433 0601 00 0 05525 STO SW6+4 SELECT AT SWITCH 6  
71434 0500 00 0 05531 CLA CTRL1 RESTORE CONTROL 1  
71435 0020 00 0 00054 TRA TCW1+2

71436 0762 00 0 01221 TPSEL RTBA 1

71437 +0004000000037 THSVN OCT 400000037  
71440 +0001000000004 TEN OCT 100000004  
71441 2 00000 0 73753 RDTP IORP RDFLD,0,0 SHOULD NOT TRANSMIT ON  
THIS CONTROL WORD  
71442 0003 40 0 74013 IOCD RDFLD+32,0,224 SHLD RD TWO 40 WD REC  
ONE 200 WRD REC AND  
TWO 40 WRD RECS

\*CONTROL FOR WRITING PRINTER DURING LONG ADDER TEST

71443 -0000 30 0 71465 SHIMG IOCP WRIT2,0,24 PRINT FIRST LINE  
71444 -0000 30 0 71465 IOCP WRIT2,0,24 PRINT SECOND LINE  
71445 0000 30 0 71465 IOCD WRIT2,0,24 PRINT THIRD LINE

\*CONTROL FOR WRITING TAPE DURING LONG ADDER TEST

71446 2 00400 0 73353 IORP WRFLD,0,256 WRITE FIRST RECORD  
71447 2 00400 0 73353 IORP WRFLD,0,256 WRITE SECOND RECORD  
71450 0004 00 0 73353 IOCD WRFLD,0,256 WRITE THIRD RECORD

\*CONTROL FOR READING TAPE AT LOCATION - UGO

71451 0004 00 0 73753 IOCD RDFLD,0,256 READ 400 FIXED NOS  
71452 -0000 30 0 72510 RCDA IOCP RCD,0,24  
71453 0000 30 0 72510 IOCD RCD,0,24

\*WRITE PRITER BINARY CONTROL

71454 -0000 02 0 71470 IOCP WRIT2+3,0,2  
71455 -0000 02 0 71512 IOCP WRIT2+21,0,2  
71456 0000 02 0 71425 IOCD FIX+60,0,2

\*CONTROLS FOR WRITING TAPE AT LOCATION - VILE 3

71457 2 00040 0 73353 WTB1 IORP WRFLD,0,32 WRITE 1ST-40 WORD REC  
71460 2 00040 0 73413 IORP WRFLD+32,0,32 WRITE 2ND-40 WORD REC  
71461 2 00040 0 73453 IORP WRFLD+64,0,32 WRITE 3RD-40 WORD REC  
71462 2 01674 0 73513 IORP WRFLD+96,0,956 WRITE 4TH-140 WORD REC  
71463 2 00040 0 73653 IORP WRFLD+192,0,32 WRITE 5TH-40 WORD REC  
71464 0000 40 0 73713 IOCD WRFLD+224,0,32 WRITE 6TH-40 WORD REC  
71465 +0000000000000 WRIT2 OCT 0,0,0,0,0,0,0,0,0,0,0,0,0,0 SHIFTING  
71466 +0000000000000  
71467 +0000000000000  
71470 +0000000000000  
71471 +0000000000000  
71472 +0000000000000  
71473 +0000000000000  
71474 +0000000000000  
71475 +0000000000000  
71476 +0000000000000  
71477 +0000000000000  
71500 +0000000000000  
71501 +0000000000000 OCT 0,0,0,0,0,0,0,0,0,0,0,0,0,0 IMAGE  
71502 +0000000000000  
71503 +0000000000000  
71504 +0000000000000  
71505 +0000000000000  
71506 +0000000000000  
71507 +0000000000000  
71510 +0000000000000  
71511 +0000000000000  
71512 +0000000000000  
71513 +0000000000000  
71514 +0000000000000

\*CONTROLS FOR READ PRINTER

71515 -3 00002 0 71465 SHAKE IOST WRIT2,0,2 PRINT 9L-9R  
71516 -2 00002 0 71467 IOSP WRIT2+2,0,2 8L-8R  
71517 1 00030 0 71546 TCH INDA,0,24 INDIRECT ADDRESS  
71520 3 00024 0 71471 IORT WRIT2+4,0,20 7L-12R  
71521 0000 00 0 00000 IOCD 0  
71522 -3 00020 0 71465 IOST WRIT2,0,16 WRITE 9L-2R  
71523 0000 00 0 00000 IOCD 0  
71524 1 00000 0 71526 TCH \*+2 INDIRECT ADDRESS  
71525 0000 00 0 00000 IOCD 0  
71526 -0000 02 0 71505 IOCP WRIT2+16,0,2 WIRTE 1L-1R  
71527 -0000 02 0 72013 IOCP E84,0,2 8-4L - 8-4R ECHO  
71530 -1 00002 0 71507 IOCT WRIT2+18,0,2 WRITE 0L-0R  
71531 0000 00 0 00000 IOCD 0  
71532 -0000 02 0 72011 IOCP E83,0,2 8-3L - 8 - 3R ECHO  
71533 -1 00002 0 71511 IOCT WRIT2+20,0,2 WRITE 11L-11R  
71534 -0000 01 0 71767 IOCP ECHO,0,1 9L ECHO  
71535 -0000 01 0 71770 IOCP ECHO+1,0,1 9R ECHO

71536 -3 00002 0 71513 IOST WRIT2+22,0,2 WRITE 12L-12R  
 71537 -2 00002 0 71771 IOSP ECHO+2,0,2 8L-8R ECHO  
 71540 -0000 16 0 71773 IOCP ECHO+4,0,14 7L-1R ECHO  
 71541 1 00000 0 71543 TCH \*+2 IND. ADDR. TO SCH1-1  
 71542 0000 00 0 00000 IOCD 0  
 71543 0000 00 0 00000 IOCD 0

\*CORRECT CONTENTS SCH TEST

71544 3 71521 0 71515 SCH1 IORT WRIT2+24,0,SHAKE+4  
 71545 0715 44 0 00000 SCH2 IOCD 0,0,SCH1  
 71546 1 00030 0 71520 INDA TCH SHAKE+3,0,24 DOUBLE IND ADDR  
 71547 0000 01 0 71566 CNTL IOCD ONES,0,1 WRITE ONE WORD-ONES  
 71550 0000 01 0 71567 IOCD ZEROS,0,1 WRITE ONE WORD-ZEROS  
 71551 0000 01 0 71570 CNTLR IOCD READ,0,1 READ ONE WORD  
 71552 0000 02 0 71570 IOCD READ,0,2 READ ONE REC AND BCD EOF  
 71553 0000 02 0 71572 IOCD READ+2,0,2 READ ONE REC AND BIN EOF

\*CONTROL FOR WRITE PUNCH AT LOCATION-CRAZY+8

71554 -1 00002 0 72460 CNTLW IOCT IRAN,0,2 WRITE PUNCH-9L-9R  
 71555 -1 00002 0 72462 IOCT IRAN+2,0,2 8L-8R  
 71556 -0000 02 0 72464 IOCP IRAN+4,0,2 7L-7R  
 71557 1 00000 0 71560 TCH CNTLW+4 IND. ADDR. TO NEXT LOC.  
 71560 -2 00002 0 72466 IOSP IRAN+6,0,2 6L-6R  
 71561 3 00020 0 72470 IORT IRAN+8,0,16 5L-12R  
 71562 0004 00 0 73353 TPCTL IOCD WRFLD,0,256 WRITE 400 FIXED NOS

\*CONTROL FOR WRITING PUNCH WHILE READING TAPE

71563 -2 00012 0 73353 WPUA IOSP WRFLD,0,10 PUNCH 12 WORDS  
 71564 2 00020 0 73365 IORP WRFLD+10,0,16 WRITE EOR  
 71565 0000 00 0 00000 IOCD  
 71566 -3777777777777777 ONES OCT 77777777777777  
 71567 +0000000000000 ZEROS OCT 0  
 71570 +0000000000000 READ OCT 0  
 71571 +0000000000000 OCT 0  
 71572 +0000000000000 OCT 0  
 71573 +0000000000000 OCT 0  
 71574 +2024000000000 FPCON DEC 2.0  
 71575 +2330000000000 OCT 2330000000000  
 71576 +2054000000000 DEC 16.0  
 71577 +2034000000000 DEC 4.0  
 71600 +2014000000000 DEC 1.0,4.0,3.0,4.0,2.0,-1.0,-3.0  
 71601 +2034000000000  
 71602 +2026000000000  
 71603 +2034000000000  
 71604 +2024000000000  
 71605 -2014000000000  
 71606 -2026000000000  
 71607 +2014000000000 DEC 1.0,6.0,-40.0,196.0,14.0,4.0,-10.0  
 71610 +2036000000000  
 71611 -2065000000000  
 71612 +2106100000000  
 71613 +2047000000000  
 71614 +2034000000000

71615 -204500000000  
 71616 +201400000000 DEC 1.0,10.0,-144.0,676.0,26.0,8.0,-18.0  
 71617 +204500000000  
 71620 -210440000000  
 71621 +212522000000  
 71622 +205640000000  
 71623 +204400000000  
 71624 -205440000000  
 71625 +201400000000 COEF DEC 1.0  
 71626 +002000000000 SAY OCT 002000000000

\*ADDRESS OF TEST THAT LAST ENTERED CLEAR GOES IN  
 \*DECREMENT OF MONIT IN TWOS COMP. FORM

71627 +000000000000 MONIT OCT 0  
 71630 +0000000000200 K41 OCT 200  
 71631 +0007777777777777 KK OCT 0007777777777777BLANK CHAR  
 71632 0000 00 0 00002 TWO HTR 2  
 71633 +0000000000000 Q OCT 0  
 71634 +2000000000000 CCH OCT 200000000000  
 71635 +1470000000000 CCH1 OCT 147000000000  
 71636 +0000000000000 BIN OCT 0  
 71637 514751216060 PREA BCD 1RPRA  
 71640 514751236060 PREC BCD 1RPRC  
 71641 514751256060 PREE BCD 1RPRE  
 71642 512324216060 CRCA BCD 1RCDA  
 71643 512324236060 CRCC BCD 1RCDC  
 71644 512324256060 CRCE BCD 1RCDE  
 71645 314501116022 TP19B BCD 1IN19 B  
 71646 314501116024 TP19D BCD 1IN19 D  
 71647 314501116026 TP19F BCD 1IN19 F  
 71650 +0000000000000 CNT1 OCT 0  
 71651 +0000000000100 CNT2 OCT 100  
 71652 +0000000000000 STPCT OCT 0

71653 RDNA BSS 24  
 71703 RDNA1 BSS 24

71733 -152347011427 RANOS OCT -152347011427 INITIAL RAND. NO.  
 71734 3 71562 0 72510 SCHA IORT IRAN+24,0,CNTLW+6  
 71735 +0000000000000 RST OCT 0 TEMPORARY STORAGE

\*CONTROL FOR WRITE PUNCH ATLOCATION-XTRA+11

71736 3 00030 0 71465 SHIM IORT WRIT2,0,24 PUNCH ONE BCD CARD  
 71737 +001001002001 WRITE OCT 1001002001 9L  
 71740 +000000200200 OCT 200200 9R  
 71741 +002002004002 OCT 2002004002 8L  
 71742 +077600400401 OCT 077600400401 8R  
 71743 +004004010004 OCT 4004010004 7L  
 71744 +000001001002 OCT 1001002 7R  
 71745 +010010020010 OCT 10010020010 6L  
 71746 +000002002004 OCT 2002004 6R



71747	+020020040020		OCT 20020040020	5L
71750	+000004004010		OCT 4004010	4R
71751	+040040100040		OCT 40040100040	4L
71752	+074010010020		OCT 74010010020	4R
71753	+100100200100		OCT 100100200100	3L
71754	+003620020040		OCT 3620020040	3R
71755	+200200400200		OCT 200200400200	2L
71756	+000040040100		OCT 40040100	2R
71757	-000400000400		OCT 400400000400	1L
71760	+100100100000		OCT 100100100000	1R
71761	+000000777000		OCT 777000	0L
71762	+111000000177		OCT 111000000177	0R
71763	+000777000000		OCT 777000000	11L
71764	+220400177600		OCT 220400177600	11R
71765	-377000000000		OCT 777000000000	12L
71766	-040377600000		OCT 440377600000	12R
71767	+000000000000	ECHO	OCT 0,0,0,0,0,0,0,0,0,0,0,0	
71770	+000000000000			
71771	+000000000000			
71772	+000000000000			
71773	+000000000000			
71774	+000000000000			
71775	+000000000000			
71776	+000000000000			
71777	+000000000000			
72000	+000000000000			
72001	+000000000000			
72002	+000000000000			
72003	+000000000000		OCT 0,0,0,0,0,0	
72004	+000000000000			
72005	+000000000000			
72006	+000000000000			
72007	+000000000000			
72010	+000000000000			
72011	+000000000000	E83	OCT 0,0	
72012	+000000000000			
72013	+000000000000	E84	OCT 0,0	
72014	+000000000000			
72015	+000000000022	TWTWO	OCT 22	
72016	+000000000000	ZERO	OCT 0	
72017	+000000000001	ONE	OCT 1	
72020	0004 00 0 73353	GO	IOCD WRFLD,0,256	WRITE 400 WORD REC
*READ TAPE CONTROL-INDICATOR 19				
72021	-1 00001 2 73753	IND19	IOCT RDFLD,2,1	SKIP ONE WORD
72022	1 00002 2 72024		TCH IND19+3,2,2	TEST IND 19 WITH IND ADDR
72023	0000 00 0 00000		IOCD	
72024	-0000 52 0 73754		IOCP RDFLD+1,0,42	READ 42 WORDS
72025	-0000 52 2 74026		IOCP RDFLD+43,2,42	SKIP 42 WORDS
72026	-2 00052 0 74100		IOSP RDFLD+85,0,42	READ 42 WORDS
72027	-2 00052 2 74152		IOSP RDFLD+127,2,42	SKIP 42 WORDS
72030	-2 00052 0 74224		IOSP RDFLD+169,0,42	READ 42 WORDS
72031	3 00144 2 74276		IORT RDFLD+211,2,100	SKIP REMNDR OF REC

72032	0003	00	0	73753	SRD	IOCD	RDFLD,0,192	READ	TAPE
72033	0001	00	0	74253	SRD1	IOCD	RDFLD+192,0,64	READ	TAPE
72034	0761	00	0	04004		NOP	NOISE+16		
72035	+010304051011				1ST	OCT	010304051011		
72036	+061101051103				2ND	OCT	061101051103		
72037	2	00031	0	72017	TABLE	TIX	TABLE-16,0,25	TABLE	
72040	2	00036	0	72027		TIX	TABLE-8,0,30	FOR	
72041	2	00044	0	72035		TIX	TABLE-2,0,36	CONVERT	
72042	2	00062	0	72027		TIX	TABLE-8,0,50	BY REPLACEMENT	
72043	2	00144	0	72035		TIX	TABLE-2,0,100	FROM	
72044	2	01750	0	72035		TIX	TABLE-2,0,1000	ACCUMULATOR	
72045	2	00050	0	72032	TBLE1	TIX	TBLE1-11,0,40	TABLE	
72046	2	00013	0	72042		TIX	TBLE1-3,0,11	FOR	
72047	2	00024	0	72036		TIX	TBLE1-7,0,20	USE	
72050	2	00074	0	72030		TIX	TBLE1-13,0,60	BY	
72051	2	00036	0	72036		TIX	TBLE1-7,0,30	CRQ	
72052	2	00050	0	72031		TIX	TBLE1-12,0,40	INSTRUCTION	
72053	+010203040506				K16	OCT	010203040506		
72054	2	10000	0	72053		TIX	K16,0,4096	TABLE	
72055	2	20000	0	72053		TIX	K16,0,8192	FOR	
72056	2	30000	0	72053		TIX	K16,0,12288	USE	
72057	2	40000	0	72053		TIX	K16,0,16384	BY	
72060	2	50000	0	72053		TIX	K16,0,20480	CAQ	
72061	2	60000	0	72053		TIX	K16,0,24576	INSTRUCTION	
72062	0074	00	4	72161	CATCH	TSX	SPACE,4		
72063	0021	00	0	72106		TTR	SEQ		
72064	0000	30	0	74146	STCTL	IOCD	START,0,24		
72065	0000	30	0	10434	ENCTL	IOCD	END,0,24		
72066	-0500	00	0	72062	ITS	CAL	CATCH	L	TSX SPACE,4
72067	0774	00	1	67163		AXT	32767-OMY,1	FILL	UPPER
72070	0601	00	1	00000		STO	0,1	STORAGE	
72071	2	00001	1	72072		TIX	*+1,1,1		
72072	3	06464	1	72070		TXH	ITS+2,1,32768-BCD1+2		
72073	0774	00	1	00027		AXT	23,1	FILL	STORAGE
72074	0601	00	1	00030		STO	24,1	OVER	LOADER
72075	2	00001	1	72074		TIX	*-1,1,1		
72076	0500	00	0	72063		CLA	CATCH+1	L	TTR SEQ
72077	0601	00	0	00010		STO	8		
72100	0500	00	0	71652		CLA	STPCT	RESTORE	
72101	0601	00	0	72375		STO	TPCNT	TAPE	COUNT
72102	0500	00	0	72366		CLA	RSET		
72103	0601	00	0	00000		STO	0		
72104	0600	00	0	00001		STZ	1		
72105	0020	00	0	00150		TRA	TOV-4		

\*F.P. TRAP SEQUENCE-MONITOR

72106	-0760	00	0	00007	SEQ	LTM		JUST IN CASE	
72107	-0760	00	0	00144		SLT 4		WAS TRAP EXPECTED	
72110	1	77777	0	72117		TXI	WHAT,0,32767	NO,ERROR	
72111	0760	00	0	00144		SLN 4		YES-TRAP EXPECTED	
72112	3	00000	4	72143		TXH	XRCE,4,0	IF XRC STILL ZERO	
72113	0534	00	4	00000		LXA	0,4	OK	
72114	-0634	00	4	72124		SXD	SAVE4+2,4	SAVE TRAP ADDRESS	
72115	-0534	00	4	72116		LXD	SECT2,4	CLEA XRC	
72116	1	00000	0	00000	SECT2	TXI	0	RETURN	
72117	-0634	00	1	72131	WHAT	SXD	TRAP-2,1	LITE 4 WAS OFF	
72120	0534	00	1	00000		LXA	0,1	WAS AN ADDRESS PUT AT 0	
72121	-3	00000	1	72156		TXL	OUTER,1,0	IF NOT-ERROR	
72122	-0634	00	1	72540	SAVE4	SXD	FREE,1	IS SO,IS IT{LAST	
72123	-0535	00	1	72540		LDC	FREE,1	TRAP ADDRESS	
72124	1	00000	1	72125		TXI	*+1,1,0		
72125	-3	00000	1	72156		TXL	OUTER,1,0	IF ZERO,NO TRAP BUT SKIPPED TO SPACE	
72126	0534	00	1	00000		LXA	0,1		
72127	-0634	00	1	72124		SXD	SAVE4+2,1	SAVE TRAP ADDRESS	
72130	-0534	00	1	72131		LXD	TRAP-2,1	RESTORE XRA	
72131	1	00000	0	72137		TXI	FADED	TRAP ERROR	
72132	264760635147					BCD	1FP TRP		
72133	0534	00	4	00000	TRAP	LXA	0,4	RETURN TO PROG	
72134	0634	00	4	72136		SXA	*+2,4		
72135	-0534	00	4	72136		LXD	*+1,4	RESTORE XRC	
72136	1	00000	0	00000		TXI		RETURN	
72137	-0634	00	4	72136	FADED	SXD	*-1,4	SAVE XRC	
72140	0074	00	4	06267		TSX	ERROR-1,4	TRAP IN ERROR	
72141	0020	00	0	72133		TRA	TRAP	TRA TO 10 IS ILLEGAL	
72142	0020	00	0	72133		TRA	TRAP	SEE ADDRESS AT ZERO	
72143	-0634	00	2	72540	XRCE	SXD	FREE,2	SAVE XRB	
72144	-0634	00	4	72541		SXD	FREE+1,4	AND XRC	
72145	-0534	00	2	72541		LXD	FREE+1,2	MOVE XRC TO XRB	
72146	1	00000	0	72150		TXI	*+2		
72147	316331442540					BCD	1ITIME-		
72150	0074	00	4	06267		TSX	ERROR-1,4	XRC WAS NOT ZERO	
*ALL LEGAL TRAPS OCCUR WHEN XRC{0. IF XRC IS NOT{0,									
*THEN EITHER TRAP OCCURED WHEN IT SHOULD NOT HAVE,									
*OR XRC WAS CHANGED BY THE TRAP OPERATION. THE									
*VALUE WHICH WAS LOADED INTO XRC HAS BEEN MOVED									
*TO XRB. ZERO HAS THE ERROR LOCATION +1.									
72151	0761	00	0	72150		NOP	XRCE+5		
72152	0534	00	4	00000		LXA	0,4	SAVE TRAP	
72153	-0634	00	4	72124		SXD	SAVE4+2,4	ADDRESS	

72154 -0534 00 2 72540 LXN FREE,2 RESTORE XRB  
 72155 0020 00 0 72115 TRA SECT2-1 RETURN TO TRAP PROG  
 72156 -0534 00 1 72131 OUTER LXN TRAP-2,1 RESTORE XRA  
 72157 0074 00 4 72161 TSX SPACE,4 GOT TO 10 BY MISTAKE

72160 624721232560 BCD 1SPACE

72161 -0634 00 4 71636 SPACE SXN BIN,4 SPACE ADDRESS  
 72162 -0535 00 4 71636 LDC BIN,4 TRUE TO DECREMENT  
 72163 -0634 00 4 71636 SXN BIN,4 OF BIN  
 72164 -0535 00 4 71627 LDC MONIT,4 ADDRESS OF TEST  
 72165 0634 00 4 71636 SXA BIN,4 THAT LOST CONTROL  
 TO ADDRESS  
 72166 0441 00 0 71636 LDI BIN BIN TO IND.  
 72167 0074 00 4 06267 TSX ERROR-1,4 TRANS OUT OF CONTROL.

\*THE ADDRESS FROM WHICH CONTROL WAS RECOVERED  
 \*IS IN DECR. OF THE INDICATORS, THE STARTING  
 \*ADDRESS OF TEST WHICH WAS UNDERWAY IS IN THE  
 \*ADDRESS OF THE INDICATORS

72170 0761 00 0 72161 NOP SPACE  
 72171 -0534 00 4 71627 LXN MONIT,4  
 72172 0500 00 4 77776 CLA -2,4 RESET MONIT  
 72173 0734 00 2 00000 PAX 0,2 AND  
 72174 -0634 00 2 71627 SXN MONIT,2 RETURN TO  
 72175 0020 00 4 00000 TRA 0,4 PROPER SEQUENCE

\*PROGRAM SEQUENCE AND CONTROL MONITOR  
 \*IN CASE PROGRAM TRANSFER OUT OF CONTROL

72176 0760 00 0 00140 CLEAR SLF  
 72177 0760 00 0 00161 SWT 1  
 72200 0020 00 0 72202 TRA \*+2 TEST SWITCH 4  
 72201 0020 00 0 72204 TRA \*+3  
 72202 0760 00 0 00164 SWT 4  
 72203 0020 00 0 72207 TRA \*+4 NOT REPEATED  
 72204 -0754 00 4 00000 PXN 0,4  
 72205 0402 00 0 71627 SUB MONIT  
 72206 0100 00 0 72234 TZE RESET+1 IF ZERO-SEQUENCE OK

72207 0600 00 0 72540 STZ FREE  
 72210 -0634 00 4 72540 SXN FREE,4 SAVE TEST ADDRESS  
 72211 0500 00 4 77776 CLA -2,4 PRECEDIN TEST ADDRESS  
 72212 0737 00 4 00000 PAC 0,4 COMPLEMENT  
 72213 -0754 00 4 00000 PXN 0,4  
 72214 0402 00 0 71627 SUB MONIT SHOULD BE ZERO  
 72215 -0534 00 4 72540 LXN FREE,4 RESTORE XRC  
 72216 0100 00 0 72234 TZE RESET+1 IF ZERO,NORMAL PROGRAM  
 SEQUENCE IS OK

72217 0760 00 0 00004 ENK CHECK FOR MANUAL TRANSFER  
 72220 0131 00 0 00000 XCA  
 72221 0737 00 4 00000 PAC 0,4 COMPLEMENT ADDRESS IN KEYS  
 72222 0765 00 0 00025 LRS 21 CHECK TRA ONLY  
 72223 0402 00 0 71630 SUB K41 L0200

72224	-0100	00	0	72231	TNZ	*+5	SEQUENCE BAD IF NOT 0
72225	-0754	00	4	00000	PXD	0,4	OK,CHECK ADDRESS
72226	0402	00	0	72540	SUB	FREE	
72227	-0534	00	4	72540	LXD	FREE,4	RESTORE
72230	0100	00	0	72234	TZE	RESET+1	OK IF ZERO
72231	-0534	00	4	72540	LXD	FREE,4	PROGRAM OUT OF SEQUENCE
72232	0021	00	0	72161	TTR	SPACE	
72233	0760	00	0	00140	RESET	SLF	
72234	-0634	00	4	71627	SXD	MONIT,4	
72235	-0535	00	4	71627	LDC	MONIT,4	
72236	1	00001	4	72237	TXI	*+1,4,1	FOR RETURN
72237	0634	00	4	72251	SXA	EXIT,4	
72240	-0754	00	0	00000	PXD		CLEAR ACC
72241	0601	00	0	00000	STO		CLEAR ZERO
72242	0560	00	0	00000	LDQ		CLEAR MQ
72243	0140	00	0	72244	TOV	*+1	TURN OFF
72244	0761	00	0	00000	NOP		
72245	0760	00	0	00012	DCT		
72246	0761	00	0	00000	NOP		
72247	0044	00	0	00000	PAI		RESET
72250	-0534	00	7	00000	LXD	0,7	CLEAR XRS
72251	0020	00	0	00000	EXIT	TRA	RETURN TO PROG
72252	0760	00	0	00140	PART2	SLF	LIGHTS OUT
72253	0760	00	0	00144		SLN 4	4 ON
72254	0020	00	0	72177		TRA CLEAR+1	CLEAR
72255	0760	00	0	00140	PART3	SLF	
72256	0760	00	0	00143		SLN 3	3 ON
72257	0020	00	0	72253		TRA PART2+1	

\*SQUARE ROOT SUBROUTINE. ROOT EXACT TO 9 OCTAL DIGITS

72260	-0120	00	4	00001	SQRT	TMI 1,4	ERROR
72261	0100	00	4	00002		TZE 2,4	OUT OF ZERO
72262	0634	00	1	72276		SXA *+12,1	SAVE XRA
72263	0774	00	1	00015		AXT 13,1	13 ITERATIONS
72264	0601	00	0	72540		STO FREE	N{RADICAN
72265	0402	00	0	72300		SUB *+11	N/2
72266	0300	00	0	72301		FAD *+11	+1
72267	0601	00	0	72541		STO FREE+1	FIRST GUESS{X
72270	0500	00	0	72540		CLA FREE	N
72271	0241	00	0	72541		FDP FREE+1	N/X
72272	0131	00	0	00000		XCA	
72273	0300	00	0	72541		FAD FREE+1	+X
72274	0402	00	0	72300		SUB *+4	DIV BY 2
72275	2	00001	1	72267		TIX *-6,1,1	REPEAT
72276	0774	00	1	00000		AXT 0,1	REPLACE XRA
72277	0020	00	4	00002		TRA 2,4	EXIT
72300	+001000000000					OCT 001000000000	
72301	+201400000000					DEC 1.0	

\*SQUARE ROOT SUBROUTINE WITH INDIRECT ADDRESSING

72302	-0120	00	4	00001	SQRI	TMI 1,4	ERROR
72303	0100	00	4	00002		TZE 2,4	OUT OF ZERO

72304	0634	00	1	72320		SXA SQRI+14,1	SAVE XRA
72305	0774	00	1	00015		AXT 13,1	13 ITERATIONS
72306	0601	60	0	72264		STO* SQRT+4	N{RADICAN
72307	0402	60	0	72265		SUB* SQRT+5	N/2
72310	0300	60	0	72266		FAD* SQRT+6	+1
72311	0601	60	0	72267		STO* SQRT+7	FIRST GUESS{X
72312	0500	60	0	72270		CLA* SQRT+8	N
72313	0241	60	0	72271		FDP* SQRT+9	N/X
72314	0131	00	0	00000		XCA	
72315	0300	60	0	72273		FAD* SQRT+11	+X
72316	0402	60	0	72274		SUB* SQRT+12	DIV BY 2
72317	2	00001	1	72311		TIX *-6,1,1	REPEAT
72320	0774	00	1	00000		AXT 0,1	REPLACE XRA
72321	0020	00	4	00002		TRA 2,4	EXIT
72322	-0534	00	1	71443	RELO	LXD SHIMG,1	L+30
72323	-0500	00	1	71767		CAL WRITE+24,1	TO RELOCATE
72324	0602	00	1	71515		SLW WRIT2+24,1	RECORD
72325	2	00001	1	72323		TIX RELO+1,1,1	IMAGE
72326	0020	00	2	00001		TRA 1,2	
72327	-0534	00	1	71443	SHIFT	LXD SHIMG,1	L+30
72330	-0500	00	1	71515		CAL WRIT2+24,1	
72331	0560	00	1	71516		LDQ WRIT2+25,1	ROUTINE
72332	-0760	00	0	00001		PBT	
72333	0020	00	0	72335		TRA *+2	TO
72334	0020	00	0	72343		TRA *+7	
72335	-0763	00	0	00001		LGL 1	SHIFT
72336	0602	00	1	71515		SLW WRIT2+24,1	
72337	-0763	00	0	00044		LGL 36	PRINT
72340	0602	00	1	71516		SLW WRIT2+25,1	
72341	2	00002	1	72330		TIX *-9,1,2	
72342	0020	00	0	72350		TRA *+6	IMAGE
72343	-0763	00	0	00001		LGL 1	
72344	0602	00	1	71515		SLW WRIT2+24,1	
72345	-0763	00	0	00044		LGL 36	
72346	0400	00	0	72017		ADD ONE	L+1
72347	0020	00	0	72340		TRA *-7	
72350	0020	00	2	00001		TRA 1,2	
72351	0761	00	0	71620	K1	NOP COEF-5	
72352	0761	00	0	71600		NOP FPCON+4	
72353	0761	00	0	72355		NOP K22	
72354	0761	00	0	72356		NOP K23	
72355	+201040000000				K22	OCT +201040000000	
72356	+2220000000001				K23	OCT +2220000000001	
72357	0720	65	0	74176	SCHTR	IOCD 16KAB,0,STCTL+1	
72360	-2	00010	0	72400	RCWT	IOSP RDINA,0,8	READ FIRST 10 WORDS
72361	-0000	10	0	72410		IOCP RDINA+8,0,8	READ NEXT 10 WORDS
72362	1	00036	0	72364		TCH *+2,0,30	
72363	0000	00	0	00000		IOCD	
72364	-3	00010	0	72420		IOST RDINA+16,0,8	READ LAST 10 WORDS
							NO LCH-SHOULD DISCONNECT
72365	3	00074	0	73753	RCRT	IORT RDFLD,0,60	READ ONE 40 WORD RECORD

72366	0020 00 0	72367	RSET	TRA RSET1	
72367	0074 00 4	05545	RSET1	TSX IORST,4	RESET
72370	0050 22 0	00154		HTR TOV,0,EX	COMPETE
72371	0074 00 4	05545		TSX IORST,4	PROGRAM
72372	0106 14 0	10574		HTR BCDTA,0,BCDF+2	TO INITIAL
72373	0020 00 0	00030		TRA BEGIN	STATE
72374	+0000000000001		COUNT	OCT 1	
72375	+0000000000000		TPCNT	OCT	COUNT FOR HIGHEST NUMBER OF TAPE UNITS PER CHAN
72376	-3777777777770		CMOUT	OCT 777777777770	
72377	-1 00001 0	73353	WC1	IOCT WRFLD,0,1	CNTRL FOR STRT BUTTON TEST
		72400	RDINA	BSS 24	
72430	+020020040020		RDINC	OCT 20020040020	9L IMAGE
72431	+000004004000			OCT 4004000	9R
72432	+040040100041			OCT 40040100041	8L
72433	-374010010020			OCT 774010010020	8R WHICH
72434	+100100200100			OCT 100100200100	7L
72435	+000020020040			OCT 20020040	7R
72436	+200200400200			OCT 200200400200	6L SECOND
72437	+000040040100			OCT 40040100	6R
72440	-000401000400			OCT 400401000400	
72441	+000100100200			OCT 100100200	5R CARD
72442	+001002001001			OCT 1002001001	4L
72443	-300200200401			OCT 700200200401	4R
72444	+002004002000			OCT 2004002000	3L READ
72445	+074400401002			OCT 74400401002	3R
72446	+004010004000			OCT 4010004000	2L
72447	+001001002004			OCT 1001002004	2R SHOULD
72450	+010000010002			OCT 10000010002	1L
72451	+002002000010			OCT 2002000010	1R
72452	+000017760002			OCT 17760002	0L COMPARE
72453	+220000003760			OCT 220000003760	0R
72454	+017760000004			OCT 17760000004	11L
72455	-010003774000			OCT 410003774000	11R WITH
72456	-360000000011			OCT 760000000011	12L
72457	+007774000017			OCT 7774000017	12R
		72460	IRAN	BSS 24	BLOCK FOR RAND. NO.
		72510	RCD	BSS 24	
		72540	FREE	BSS 10	
72552	-0000 20 0	71465	LOST	IOCP WRIT2,0,16	9L-2R
72553	-0000 02 0	71505		IOCP WRIT2+16,0,2	1L-1R
72554	-0000 02 0	72013		IOCP E84,0,2	8-4L - 8-4R ECHO
72555	-0000 02 0	71507		IOCP WRIT2+18,0,2	WRITE 0L-0R
72556	-0000 02 0	72011		IOCP E83,0,2	8-3L - 8-3R ECHO
72557	-0000 02 0	71511		IOCP WRIT2+20,0,2	WRITE 11L-11R
72560	-0000 02 0	71767		IOCP ECHO,0,2	9L-9R ECHO
72561	-0000 02 0	71513		IOCP WRIT2+22,0,2	WRITE 12L-12R
72562	-0000 02 0	71771		IOCP ECHO+2,0,2	8L-8R ECHO

72563	0000	16	0	71773		IOCD	ECHO+4,0,14	7L-1R	ECHO
72564	-0000	20	0	71465	CAUSE	IOCP	WRIT2,0,16	WRITE	9L-2R
72565	-0000	02	0	71505		IOCP	WRIT2+16,0,2	1L-1R	
72566	-0000	02	0	73144		IOCP	EC84,0,2	8-4L - 8-4R	ECHO
72567	-0000	02	0	71507		IOCP	WRIT2+18,0,2	WRITE	0L-0R
72570	-0000	02	0	73142		IOCP	EC83,0,2	8-3L	
72571	-0000	02	0	71511		IOCP	WRIT2+20,0,2	WRITE	11L-11R
72572	-0000	02	0	73120		IOCP	ECHOC,0,2	9L-9R	ECHO
72573	-0000	02	0	71513		IOCP	WRIT2+22,0,2	WRITE	12L-12R
72574	-0000	02	0	73122		IOCP	ECHOC+2,0,2	8L-8R	ECHO
72575	0000	16	0	73124		IOCD	ECHOC+4,0,14	7L-1R	ECHO

72576	-0000	20	0	71465	XCEL	IOCP	WRIT2,0,16	WRITE	9L-2R
72577	-0000	02	0	71505		IOCP	WRIT2+16,0,2	1L-1R	
72600	-0000	02	0	73172		IOCP	EE84,0,2	8-4L - 8-4R	ECHO
72601	-0000	02	0	71507		IOCP	WRIT2+18,0,2	WRITE	0L-0R
72602	-0000	02	0	73170		IOCP	EE83,0,2	8-3L	
72603	-0000	02	0	71511		IOCP	WRIT2+20,0,2	WRITE	11L-11R
72604	-0000	02	0	73146		IOCP	ECHOE,0,2	9L-9R	ECHO
72605	-0000	02	0	71513		IOCP	WRIT2+22,0,2	WRITE	12L-12R
72606	-0000	02	0	73150		IOCP	ECHOE+2,0,2	8L-8R	ECHO
72607	0000	16	0	73152		IOCD	ECHOE+4,0,14	7L-1R	ECHO

CONSTANTS

72610	+00000000000000	DC1	OCT	STORAGE
72611	+00000000000000	DC2	OCT	
72612	+00000000000000	DC3	OCT	LOCATIONS
72613	+00000000000000	DC4	OCT	
72614	+00000000000000	DC5	OCT	FOR
72615	+00000000000000	DC6	OCT	
72616	+00000000000000	DC7	OCT	DRUM
72617	+00000000000000	DC8	OCT	
72620	+00000000000000	DC9	OCT	ADDRESS
72621	+00000000000000	DC10	OCT	
72622	+00000000000000	DC11	OCT	AS
72623	+00000000000000	DC12	OCT	
72624	+00000000000000	DC13	OCT	SELECTED
72625	+00000000000000	DC14	OCT	
72626	+00000000000000	DC15	OCT	
72627	+00000000000000	DC16	OCT	

72630	+0000000000301	K301	OCT 301	OCTAL
72631	+0000000000302	K302	OCT 302	
72632	+0000000000303	K303	OCT 303	
72633	+0000000000304	K304	OCT 304	DRUM
72634	+0000000000305	K305	OCT 305	
72635	+0000000000306	K306	OCT 306	
72636	+0000000000307	K307	OCT 307	
72637	+0000000000310	K310	OCT 310	
72640	+0000000000311	K311	OCT 311	
72641	+0000000000312	K312	OCT 312	
72642	+0000000000313	K313	OCT 313	
72643	+0000000000314	K314	OCT 314	
72644	+0000000000315	K315	OCT 315	
72645	+0000000000316	K316	OCT 316	



72646	+0000000000317	K317	OCT 317
72647	+0000000000320	K320	OCT 320
72650	+0000000000000	Z20	OCT 0
72651	-0056 00 200000	RESTR	LNT 200000
72652	+0000000000000	DC	OCT 0
72653	+0000000000000	DRUM	OCT 0
72654	+0000000000300	K300	OCT 300
72655	+0000000000106	TBLE2	OCT 00106
72656	+0000000000105		OCT 00105
72657	+0000000000104		OCT 00104
72660	+0000000000103		OCT 00103
72661	+0000000000102		OCT 00102
72662	+0000000000101		OCT 00101
72663	+0000000000100		OCT 00100
72664	+0000000000600		OCT 06009
72665	+0000000000600		OCT 06008
72666	+00000000006007		OCT 06007
72667	+00000000006006		OCT 06006
72670	+00000000006005		OCT 06005
72671	+00000000006004		OCT 06004
72672	+00000000006003		OCT 06003
72673	+00000000006002		OCT 06002
72674	+00000000006001		OCT 06001
72675	+0000000004000	K4000	OCT 4000
72676	+0000000001000	K1000	OCT 1000
72677	+0000000000000	LDA10	OCT 0
72700	+0000000007776	K7776	OCT 7776
72701	+0000000000000	K	OCT 0
72702	+0000000000000		OCT 0
72703	+0000000000000		OCT 0
72704	+0002000000020		OCT 200000020
72705	+0000400000020		OCT 400000020
72706	+010036004017		OCT 10036004017
72707	+003377003757		OCT 3377003757
72710	+0000000000000	CSC	OCT 0
72711	+0000000000000	T2	OCT 0
72712	+0000000000000	T1	OCT 0
72713	+0000020000001	K6	OCT 2000001
72714	+000010000400		OCT 10000400
72715	+001000000400		OCT 1000000400
72716	+007776003777		OCT 7776003777
72717	+374007776000	CS	OCT 374007776000
72720	+000000400000	400K	OCT 400000
72721	+0000000000000	T7	OCT 0
72722	+0000000000000	DA	OCT 0
72723	+0000000000004	K4	OCT 4
72724	+0000000000103	D13B	OCT 103
72725	+0000000000104	D14B	OCT 104
72726	+0000000000105	D15B	OCT 105
72727	+0000000000106	D16B	OCT 106
72730	+0000000000011	D9B	OCT 11
72731	+0000000000100	D10B	OCT 100
72732	+0000000000101	D11B	OCT 101
72733	+0000000000102	D12B	OCT 102
72734	-032421600000	LDA	OCT 432421600000

72735	+0000000000005	D5B	OCT 5
72736	+0000000000006	D6B	OCT 6
72737	+0000000000007	D7B	OCT 7
72740	+0000000000010	D8B	OCT 10
72741	+0000000000001	D1B	OCT 1
72742	+0000000000002	D2B	OCT 2
72743	+0000000000003	D3B	OCT 3
72744	+0000000000004	D4B	OCT 4
72745	+25252525252525	TEST3	OCT 252525252525
72746	+0000040000002	D02	OCT 4000002
72747	+000124000052	D52	OCT 124000052
72750	+000524000252	D252	OCT 524000252
72751	+002524001252	D1252	OCT 2524001252
72752	0 00000 0 00000	D111	
72753	0 00000 0 00000	D222	
72754	0 00000 0 00000	D333	
72755	0 00000 0 00000	D444	
72756	0 00000 0 00000	TEST1	
72757	+0000000000003	THREE	OCT 3
72760	0 00000 0 00000	CT6	
72761	0 00000 0 00000	PRNG	
72762	+0000000000100	K100	OCT 100
72763	+357642357563	RR	OCT 357642357563
72764	+000000003777	K3777	OCT 3777
72765	0 00000 0 00000	RN7	
72766	0 00000 0 00000	CAD	
72767	+000000003700	K3700	OCT 3700
72770	0 00000 0 00000	T21	
72771	0 00000 0 00000	T6	
72772	0 00000 0 00000	T10	
72773	+010776004377	K7	OCT 010776004377
72774	0761 00 0 72676	NOP	K1000
72775	+000000007777		OCT 7777
72776	+000000007775	WRDR	OCT 7775
72777	+000000000000	HECK	OCT 0
73000	+000000000000		OCT 0
73001	+000000000000		OCT 0
73002	+000000000000	CHEC	OCT 0
73003	+000000000000		OCT 0
73004	-125252525252	TEST4	OCT 525252525252
73005	-377777777777	TEST2	OCT 777777777777
73006	+000000000000	CRCHA	OCT
73007	+000000000000	PRCHA	OCT
73010	+000000000000	PUCHA	OCT
73011	+000000000000	TPCHA	OCT
73012	+000000000000	CRCHC	OCT
73013	+000000000000	PRCHC	OCT
73014	+000000000000	PUCHC	OCT
73015	+000000000000	TPCHC	OCT
73016	+000000000000	CRCHE	OCT
73017	+000000000000	PRCHE	OCT
73020	+000000000000	PUCHE	OCT
73021	+000000000000	TPCHE	OCT

73022	+000000000000		TPCHB	OCT	
73023	+000000000000		TPCHD	OCT	
73024	+000000000000		TPCHF	OCT	
73025	0004 00 0	74353		IOCD RFCD,0,256	READ 400 FIXED NOS
73026	0004 00 0	74753	SHI	IOCD RFEF,0,256	READ 400 FIXED NOS
73027	2 00000 0	74353	RDTP1	IORP RFCD,0,0	SHOULD NOT TRANSMIT ON THIS CONTROL WORD
73030	0003 40 0	74413		IOCD RFCD+32,0,224	SHLD READ TWO 40 WRD RECS ONE 200 WRD REC AND TWO 40 WRD RECS
73031	2 00000 0	74753	RDTP2	IORP RFEF,0,0	
73032	0003 40 0	75013		IOCD RFEF+32,0,224	SHLD READ TWO 40 WRD RECS ONE 200 WRD REC AND TWO 40 WRD RECS
73033	-0000 22 0	71465	SHOK	IOCP WRIT2,0,18	WRITE 9L-1R
73034	-0000 02 0	73144		IOCP EC84,0,2	8-4L - 8-4R ECHO
73035	-0000 02 0	71507		IOCP WRIT2+18,0,2	WRITE 0L-0R
73036	-0000 02 0	73142		IOCP EC83,0,2	8-3L - 8-3R ECHO
73037	-0000 02 0	71511		IOCP WRIT2+20,0,2	WRITE 11L-11R
73040	-0000 02 0	73120		IOCP ECHOC,0,2	9L-9R ECHO
73041	-0000 02 0	71513		IOCP WRIT2+22,0,2	WRITE 12L-12R
73042	-0000 02 0	73122		IOCP ECHOC+2,0,2	8L-8R ECHO
73043	0000 16 0	73124		IOCD ECHOC+4,0,14	7L-1R ECHO
73044	-0000 00 0	00000	SHOK1	IOCP	
73045	-0000 22 0	71465		IOCP WRIT2,0,18	WRITE 9L-1R
73046	-0000 02 0	73144		IOCP EC84,0,2	8-4L - 8-4R ECHO
73047	-0000 02 0	71507		IOCP WRIT2+18,0,2	WRITE 0L-0R
73050	-0000 02 0	73142		IOCP EC83,0,2	8-3L - 8-3R ECHO
73051	-0000 02 0	71511		IOCP WRIT2+20,0,2	WRITE 11L-11R
73052	-0000 02 0	73120		IOCP ECHOC,0,2	9L-9R ECHO
73053	-0000 02 0	71513		IOCP WRIT2+22,0,2	WRITE 12L-12R
73054	-0000 02 0	73122		IOCP ECHOC+2,0,2	8L-8R ECHO
73055	0000 16 0	73124		IOCD ECHOC+4,0,14	7L-1R ECHO
73056	-1 00001 2	74353	ID19	IOCT RFCD,2,1	SKIP ONE WORD
73057	1 00002 2	73061		TCH ID19+3,2,2	TEST IND 19 WITH IND 2
73060	0000 00 0	00000		IOCD	
73061	-0000 52 0	74354		IOCP RFCD+1,0,42	READ 42 WORDS
73062	-0000 52 2	74426		IOCP RFCD+43,2,42	SKIP 42 WORDS
73063	-2 00052 0	74500		IOSP RFCD+85,0,42	READ 42 WORDS
73064	-2 00052 2	74552		IOSP RFCD+127,2,42	SKIP 42 WORDS
73065	-2 00052 0	74624		IOSP RFCD+169,0,42	READ 42 WORDS
73066	3 00144 2	74676		IORT RFCD+211,2,100	SKIP REMNDR OF REC
73067	-1 00001 2	74753	ID191	IOCT RFEF,2,1	SKIP ONE WORD
73070	1 00002 2	73072		TCH ID191+3,2,2	TEST IND 19 WITH IND 2
73071	0000 00 0	00000		IOCD	
73072	-0000 52 0	74754		IOCP RFEF+1,0,42	READ 42 WORDS
73073	-0000 52 2	75026		IOCP RFEF+43,2,42	SKIP 42 WORDS



73157 +000000000000  
73160 +000000000000  
73161 +000000000000  
73162 +000000000000       OCT 0,0,0,0,0,0  
73163 +000000000000  
73164 +000000000000  
73165 +000000000000  
73166 +000000000000  
73167 +000000000000  
73170 +000000000000       EE83   OCT 0,0  
73171 +000000000000  
73172 +000000000000       EE84   OCT 0,0  
73173 +000000000000

\*UNIONJACK CONSTANTS

73174 +200000000000       J       OCT 200000000000   LEFT VERTICAL  
73175 +101777000000       OCT 101777000000   TOP HORIZONTAL  
73176 +100000000000       OCT 100000000000   BOTTOM HORIZONTAL  
73177 +200000001777       OCT 200000001777   EXTREME RIGHT VERTICAL  
73200 +300000000000       OCT 300000000000   DIAGONAL  
73201 +101000000000       OCT 101000000000   CENTER HORIZONTAL  
73202 -000000000000       OCT -000000000000   LOWER LEFT HIGH  
                                  INTENSITY SPOT  
73203 -001777000000       OCT -001777000000   LOWER RIGHT HIGH  
                                  INTENSITY SPOT  
73204 -000000001777       OCT -000000001777   UPPER LEFT HIGH  
                                  INTENSITY SPOT  
73205 -001777001777       OCT -001777001777   UPPER RIGHT HIGH  
                                  INTENSITY SPOT  
73206 -001000001000       OCT -001000001000   CENTER HIGH  
                                  INTENSITY SPOT  
73207 +200000001000       OCT 200000001000   CENTER VERTICAL  
  
73210 +000000000014       KK1   OCT 14

\*DOT CHECKERBOARD CONSTANTS

73211 +000000002000       QQ     OCT 2000  
73212 +002000000000       Q1     OCT 2000000000  
73213 +000000002100       Q2     OCT 2100  
73214 +000000000000       D1S   OCT  
73215 +000000000000       KON1   OCT 000000000000  
73216 +000770000000       KON2   OCT 7700000000  
73217 +000000001777       SIN    OCT 1777

\*INTENSITY TEST CONSTANTS

73220 +000000000004       T       OCT 4  
73221 +000004000000       U       OCT 4000000  
73222 +000000000400       W       OCT 400  
73223 +200000000000       XX      OCT 200000000000  
73224 +100000000000       Y       OCT 100000000000

73225 +000000000000 Z OCT 000000000000  
 73226 +000020000000 P OCT 20000000

\*DOT INTENSITY CONSTANTS

73227 -377677777677 CPY OCT -377677777677  
 73230 -000100000100 M OCT -000100000100  
 73231 +000000000010 N OCT 10  
 73232 -377677777677 G OCT -377677777677

73233 -000000000000 MINUS OCT -0  
 73234 +200777760000 K2A OCT 200777760000  
 73235 0000 00 0 05172 YIPE HTR EXK  
 73236 +000000000007 SEVEN OCT 7

73237 0754 00 1 00000 HUH PXA 0,1 XRA TO ACC  
 73240 0737 00 1 00000 PAC 0,1  
 73241 0754 00 1 00000 PXA 0,1  
 73242 0737 00 1 00000 PAC 0,1  
 73243 0560 00 0 73235 LDQ YIPE L HTR EXK IN MQ  
 73244 0340 00 0 73235 CAS YIPE  
 73245 0020 00 0 73247 TRA \*+2  
 73246 0020 00 0 73252 TRA \*+4  
 73247 0074 00 4 06267 TSX ERROR-1,4  
 73250 0020 00 0 05172 TRA EXK  
 73251 0020 00 0 05207 TRA EXL  
 73252 0020 00 1 00004 TRA 4,1 RETURN TO EXK+4

73253 RN BSS 64

73353 WRFLD BSS 256

73753 RDFLD BSS 2048 BLOCK FOR TAPE RD-CHAN A+B

74353 RFCD EQU RDFLD+256 BLOCK FOR TAPE RD-CHAN C+D

74753 RFEF EQU RDFLD+512 BLOCK FOR TAPE RD-CHAN E+F

77753 0000 00 0 73753 K2377 HTR RDFLD

77754 0000 30 0 07524 SECTN IOCD SECN1,0,24  
 77755 0000 30 0 07554 IOCD SECN2,0,24  
 77756 0000 30 0 07604 IOCD SECN3,0,24  
 77757 0000 30 0 07634 IOCD SECN4,0,24  
 77760 0000 30 0 07664 IOCD SECN5,0,24  
 77761 0000 30 0 07714 IOCD SECN6,0,24  
 77762 0000 30 0 07744 IOCD SECN7,0,24  
 77763 0000 30 0 07774 IOCD SECN8,0,24  
 77764 0000 30 0 10024 IOCD SECN9,0,24  
 77765 0000 30 0 10054 IOCD SEC10,0,24  
 77766 0000 30 0 10104 IOCD SEC11,0,24  
 77767 0000 30 0 10134 IOCD SEC12,0,24  
 77770 0000 30 0 10164 IOCD SEC13,0,24  
 77771 0000 30 0 10214 IOCD SEC14,0,24

77772	0000	30	0	10244		IOCD SEC15,0,24
77773	0000	30	0	10274		IOCD SEC16,0,24
77774	0000	30	0	10324		IOCD SEC17,0,24
77775	0000	30	0	10354		IOCD SEC18,0,24
77776	0000	30	0	10404		IOCD SEC19,0,24

73764                   ORG RDFLD+9

\*ADJUSTMENT FOR SIZE OF STORAGE-SECOND HALF  
 \*           TEST FOR SIZE OF STORAGE

73764	0500	00	0	72016	NOW	CLA ZERO	
73765	0601	00	0	77777		STO 32767	32K
73766	0400	00	0	72017		ADD ONE	L +1
73767	0601	00	0	37777		STO 16383	16K
73770	0400	00	0	72017		ADD ONE	
73771	0601	00	0	17777		STO 8191	8K
73772	0500	00	0	77777		CLA 32767	
73773	0100	00	0	74001		TZE 32K	32K
73774	0402	00	0	72017		SUB ONE	
73775	0100	00	0	74006		TZE 16K	16K
73776	0402	00	0	72017		SUB ONE	
73777	0100	00	0	74024		TZE 8K	8K
74000	0000	00	0	74024		HTR 8K	ERROR IN TESTING SIZE OF STORAGE PRESSING START WILL TEST 8K
74001	0500	00	0	74044	32K	CLA COTS	L 364647064647
74002	0601	00	0	02735		STO CHECK	
74003	0500	00	0	74045		CLA COTS+1	L 71011
74004	0601	00	0	03025		STO SIZE	
74005	0020	00	0	74037		TRA HOT	
74006	0500	00	0	74046	16K	CLA COTS+2	L 344657044647
74007	0601	00	0	02735		STO CHECK	
74010	0500	00	0	74047		CLA COTS+3	L 31011
74011	0601	00	0	03025		STO SIZE	
74012	0500	00	0	03127		CLA CRCTS	
74013	0402	00	0	74053		SUB 16KA	L 40000
74014	0601	00	0	03127		STO CRCTS	
74015	0500	00	0	03203		CLA CRCT1+26	
74016	0402	00	0	74053		SUB 16KA	
74017	0601	00	0	03203		STO CRCT1+26	
74020	0500	00	0	03151		CLA CRCT1	
74021	0402	00	0	74053		SUB 16KA	L 40000
74022	0601	00	0	03151		STO CRCT1	
74023	0020	00	0	74037		TRA HOT	
74024	0500	00	0	74050	8K	CLA COTS+4	L 11011
74025	0601	00	0	03025		STO SIZE	
74026	0500	00	0	03203		CLA CRCT1+26	
74027	0402	00	0	74052		SUB 8KA	

74030	0601	00	0	03203		STO CRCT1+26	
74031	0500	00	0	03127		CLA CRCTS	
74032	0402	00	0	74052		SUB 8KA	L 60000
74033	0601	00	0	03127		STO CRCTS	
74034	0500	00	0	03151		CLA CRCT1	
74035	0402	00	0	74052		SUB 8KA	L 60000
74036	0601	00	0	03151		STO CRCT1	
74037	0500	00	0	74051	HOT	CLA COTS+5	ADDR OF MONIT
74040	0737	00	4	00000		PAC 0,4	COMP OF ADDR INTO XRC
74041	-0634	00	4	71627		SXD MONIT,4	
74042	-0634	00	4	71735		SXD RST,4	
74043	0020	00	0	72066		TRA ITS	
74044	+364647064647				COTS	OCT 364647064647	
74045	+000000071011					OCT 71011	
74046	+344647044647					OCT 344647044647	
74047	+000000031011					OCT 31011	
74050	+000000011011					OCT 11011	
74051	0000	00	0	02072		HTR BEGFP	
74052	+000000060000				8KA	OCT 60000	
74053	+000000040000				16KA	OCT 40000	

73764                   ORG RDFLD+9  
 \*ADJUSTMENT FOR SIZE OF STORAGE-FIRST HALF

73764	0500	00	0	72016	NOW1	CLA ZERO	
73765	0601	00	0	77777		STO 32767	32K
73766	0400	00	0	72017		ADD ONE	
73767	0601	00	0	37777		STO 16383	16K
73770	0400	00	0	72017		ADD ONE	
73771	0601	00	0	17777		STO 8191	8K
73772	0500	00	0	77777		CLA 32767	
73773	0100	00	0	74061		TZE SETBT	32K
73774	0402	00	0	72017		SUB ONE	
73775	0100	00	0	74001		TZE 16KB	16K
73776	0402	00	0	72017		SUB ONE	
73777	0100	00	0	74031		TZE 8KB	8K
74000	0000	00	0	74031		HTR 8KB	ERROR IN TESTING SIZE OF STORAGE
74001	-0500	00	0	72357	16KB	CAL SCHTR	STORE CHANNEL
74002	0402	00	0	74176		SUB 16KAB	
74003	-0765	00	0	00022		LGR 18	
74004	0402	00	0	74176		SUB 16KAB	
74005	-0763	00	0	00022		LGL 18	
74006	0602	00	0	72357		SLW SCHTR	
74007	-0500	00	0	71544		CAL SCH1	STORE CHANNEL
74010	0402	00	0	74176		SUB 16KAB	
74011	-0765	00	0	00022		LGR 18	



74012	0402	00	0	74176		SUB	16KAB	
74013	-0763	00	0	00022		LGL	18	
74014	0602	00	0	71544		SLW	SCH1	
74015	-0500	00	0	71545		CAL	SCH2	STORE CHANNEL
74016	-0765	00	0	00022		LGR	18	
74017	0402	00	0	74176		SUB	16KAB	
74020	-0763	00	0	00022		LGL	18	
74021	0602	00	0	71545		SLW	SCH2	
74022	-0500	00	0	71734		CAL	SCHA	STORE CHANNEL
74023	0402	00	0	74176		SUB	16KAB	
74024	-0765	00	0	00022		LGR	18	
74025	0402	00	0	74176		SUB	16KAB	
74026	-0763	00	0	00022		LGL	18	
74027	0602	00	0	71734		SLW	SCHA	
74030	0020	00	0	74061		TRA	SETBT	
74031	-0500	00	0	72357	8KB	CAL	SCHTR	STORE CHANNEL
74032	0402	00	0	74177		SUB	8KAB	
74033	-0765	00	0	00022		LGR	18	
74034	0402	00	0	74177		SUB	8KAB	
74035	-0763	00	0	00022		LGL	18	
74036	0602	00	0	72357		SLW	SCHTR	
74037	-0500	00	0	71544		CAL	SCH1	STORE CHANNEL
74040	0402	00	0	74177		SUB	8KAB	
74041	-0765	00	0	00022		LGR	18	
74042	0402	00	0	74177		SUB	8KAB	
74043	-0763	00	0	00022		LGL	18	
74044	0602	00	0	71544		SLW	SCH1	
74045	-0500	00	0	71545		CAL	SCH2	STORE CHANNEL
74046	-0765	00	0	00022		LGR	18	
74047	0402	00	0	74177		SUB	8KAB	
74050	-0763	00	0	00022		LGL	18	
74051	0602	00	0	71545		SLW	SCH2	
74052	-0500	00	0	71734		CAL	SCHA	STORE CHANNEL
74053	0402	00	0	74177		SUB	8KAB	
74054	-0765	00	0	00022		LGR	18	
74055	0402	00	0	74177		SUB	8KAB	
74056	-0763	00	0	00022		LGL	18	
74057	0602	00	0	71734		SLW	SCHA	
74060	0020	00	0	74061		TRA	SETBT	
74061	0760	00	0	00163	SETBT	SWT	3	
74062	0020	00	0	74064		TRA	*+2	
74063	0020	00	0	74066		TRA	*+3	
74064	0766	00	0	01361		WPRA		
74065	0540	00	0	72064		RCHA	STCTL	CONTROL FOR PRINTING STARTING HEADING
74066	0774	00	1	00023		AXT	19,1	
74067	0774	00	4	00005		AXT	5,4	

74070	0500	00	0	07500	CLA	CBIT	BIT TO START ADDRESS
74071	0601	00	0	71320	STO	SAVE	
74072	0560	00	1	07524	LDQ	OCTAD+19,1	{ TO BE CONVERTED
74073	-0773	00	0	00003	RQL	3	SHIFT OUT PREFIX
74074	-0754	00	0	00000	PXD		CLEAR ACC
74075	-0763	00	0	00003	LGL	3	
74076	0767	00	0	00001	ALS	1	DOUBLE IT
74077	0734	00	2	00000	PAX	0,2	PLACE IN XRB
74100	0500	00	0	71320	CLA	SAVE	COLUMN TO START ADDRESS
74101	-0602	00	2	07546	ORS	SECN1+18,2	STORE BITS IN IMAGE
74102	0771	00	0	00001	ARS	1	SHIFT TO NEXT COLUMN
74103	0601	00	0	71320	STO	SAVE	
74104	2	00001	4	74074	TIX	*-8,4,1	
74105	-0500	00	0	74101	CAL	*-4	ORS INSTRUCTION
74106	0400	00	0	07477	ADD	OCTTH	INCREASE ADDR TO NEXT IMAGE
74107	0602	00	0	74101	SLW	*-6	RESTORE
74110	2	00001	1	74067	TIX	*-17,1,1	RETURN FOR 19 IMAGES

\*FORM FIXED PATTERN FOR WRITING TAPE  
\*AND COMPARE TO INSURE NO MAIN FRAME ERROR

74111	-0534	00	4	71437	LXD	THSVN,4	L 400-FORM
74112	0534	00	1	71440	LXA	TEN,1	L 4-FIXED BINARY
74113	-0534	00	2	71440	LXD	TEN,2	L 100-NUMBERS FOR
74114	0500	00	2	71431	CLA	FIX+64,2	WRITE TAPE
74115	0601	00	4	73753	STO	WRFLD+256,4	
74116	2	00001	4	74117	TIX	*+1,4,1	
74117	2	00001	2	74114	TIX	*-3,2,1	
74120	2	00001	1	74113	TIX	*-5,1,1	
74121	0020	00	0	74123	TRA	*+2	

\*COMPARISON

74122	234644476060				BCD	1COMP	COMPARISON MEMORY	
74123	-0534	00	4	71437	UNFOR	LXD	THSVN,4	L 400-COMPARE NOS TO
74124	0534	00	1	71440		LXA	TEN,1	L 4-CHECK
74125	-0534	00	2	71440		LXD	TEN,2	L 100-MAIN FRAME
74126	0500	00	4	73753		CLA	WRFLD+256,4	OPERATION
74127	0560	00	2	71431		LDQ	FIX+64,2	
74130	0340	00	2	71431		CAS	FIX+64,2	
74131	0020	00	0	74133		TRA	*+2	ERROR
74132	0020	00	0	74137		TRA	*+5	OK
74133	0634	00	4	71320		SXA	SAVE,4	SAVE XR IN CASE OF ERROR
74134	0074	00	4	06266		TSX	ERROR-2,4	PATTERN WAS NOT FORMED CORRECTLY. MAIN FRAME ERROR
74135	0761	00	0	74123		NOP	UNFOR	
74136	0534	00	4	71320		LXA	SAVE,4	RESTORE XR AFTER ERROR
74137	2	00001	4	74140		TIX	*+1,4,1	
74140	2	00001	2	74126		TIX	*-10,2,1	
74141	2	00001	1	74125		TIX	*-12,1,1	
74142	0074	00	4	06275		TSX	OK,4	OUT TO CHECK SWITCHES
74143	0020	00	0	74111		TRA	UNFOR-10	
74144	0761	00	0	00000		NOP		

74145	0020 00 0 00030		TRA BEGIN	
74146	+000000000450	START	OCT 450	9L
74147	+100000000000		OCT 100000000000	9R
74150	+000000000000		OCT 0	8L
74151	+020100400000		OCT 20100400000	8R
74152	+000000002002		OCT 2002	7L
74153	+000000000000		OCT 0	7R
74154	+000000030300		OCT 30300	6L
74155	+000000000000		OCT 0	6R
74156	+000000041004		OCT 41004	5L
74157	+000010200000		OCT 10200000	5R
74160	+000000000020		OCT 20	4L
74161	+000004000000		OCT 4000000	4R
74162	+000000000000		OCT 0	3L
74163	+000021100000		OCT 21100000	3R
74164	+000000000000		OCT 0	2L
74165	+040240040000		OCT 40240040000	2R
74166	+000000000000		OCT 0	1L
74167	+014000000000		OCT 14000000000	1R
74170	+000000010000		OCT 10000	0L
74171	+060360000000		OCT 60360000000	0R
74172	+000000062564		OCT 62564	11L
74173	-001004040000		OCT 401004040000	11R
74174	+000000001212		OCT 1212	12L
74175	+004011700000		OCT 4011700000	12R
74176	+000000040000	16KAB	OCT 40000	
74177	+000000060000	8KAB	OCT 60000	

77753	X	EQU RDFLD+2048 BLOCK FOR DRUM READ
73763	WPA	EQU X-2040
06270	ERROR	EQU A\$ERROR
06275	OK	EQU A\$OK
06344	RDNCK	EQU A\$RDNCK
06342	WDNO	EQU A\$WDNO
06343	RECNO	EQU A\$RECNO
05531	CTRL1	EQU B\$CTRL1
05532	CTRL2	EQU B\$CTRL2
05533	CTRL3	EQU B\$CTRL3
05544	CTX	EQU B\$CTX
05550	IOC	EQU B\$IOC
05534	IOCT	EQU B\$IOCT
05535	CTRA	EQU B\$CTRA
05545	IORST	EQU B\$IORST
05543	SBCNT	EQU B\$SBCNT
73764		END NOW1